

May 1961

Lighting

COMMERCIAL — INDUSTRIAL — INSTITUTIONAL — OUTDOOR — RESIDENTIAL

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Intenso®



**"Quartzlite
1500"**

Finest floodlight in the industry!

Appleton-Engineered for Amazing Efficiency!

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The 22 lumens per watt throughout life of the

Quartzlite 1500-watt lamp represents 50% greater light than that of a 1500-watt PS52 lamp. It gives a full 22 lumens per watt constantly through a 2000 hour life.

The Quartzlite 1500 offers an unusually efficient beam pattern. Its beam spread in the vertical plane has a very sharp and easily controlled cutoff, eliminating excessive "spill" light. There is wide horizontal light distribution. This floodlight can be used either outdoors, or in most indoor areas.

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APPLETON

electric company



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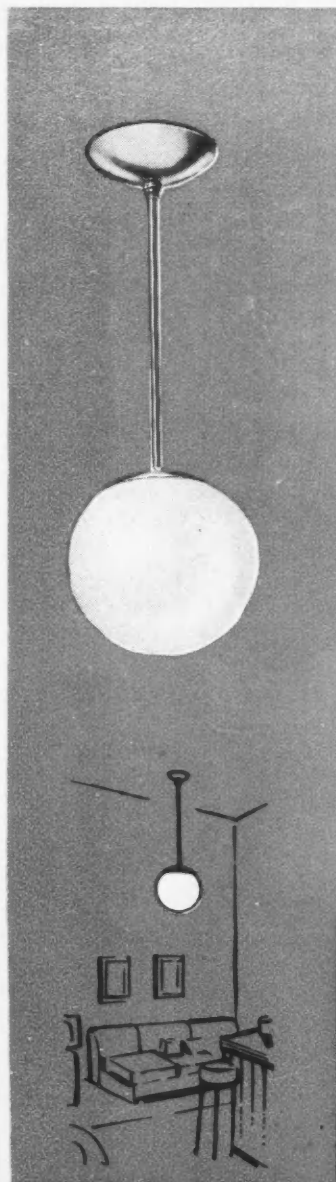
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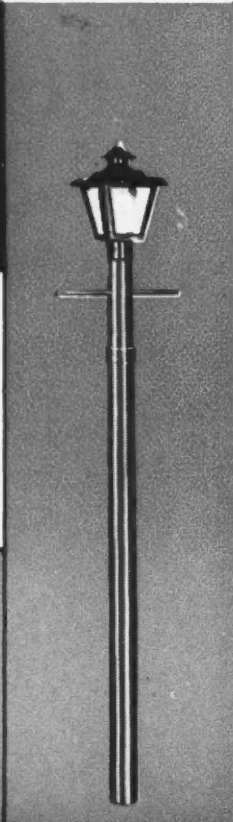
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Del-Val LIGHTING

CATALOG No. 163

DISTINCTIVE LIGHTING FIXTURES FOR THE HOME



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LIGHTING for MAY, 1961



Vol. 77

May 1961

No. 5

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IN THIS ISSUE

Modern homes need "total lighting," and too often this is neglected in houses otherwise very up-to-date. Miss Myrtle Fahsbender of Westinghouse points out how lighting increases the livability of a house. **Page 28.**

Attention is often given to new buildings whose high illumination levels show what can be done with good lighting, but of importance to the industry are relighting jobs in existing buildings, because most structures were built when recommended levels were much lower, such as the RG&E headquarters in upstate New York, currently being relighted. **Page 34.**

"It is amazing what a high level of illumination can do to keep plant morale high," says the president of a Kentucky box manufacturing company. **Page 40.**

Well-designed lighting can make a store dramatic and inviting at night, but less often discussed is its ability to improve the daytime appearance. An installation in a drugstore south of San Francisco eliminated window reflections so daytime passers-by can easily view the merchandise displayed inside. **Page 42.**

Imaginative and easily movable lighting makes work pleasant in a plant in New Jersey engaged in research and development on precise electronic components. **Page 44.**

A popular new resort in Connecticut features a golf course illuminated for night playing, plus 100 rooms, a swimming pool, and extensive dining facilities, all made more enjoyable through carefully planned lighting. **Page 46.**

Contractors' customers can make their selections from the extensive displays at an electrical supply company near Philadelphia. **Page 48.**



► The Sixth National Electrical Industries Show—the only national show for all categories of the electrical trade scheduled for 1962—will be held March 11-14 in New York's Coliseum. The show is being produced by Harold R. Meyer, producer of the highly successful Third National Lighting Exposition, recently held at the Coliseum.

► Workshops conducted by the West Texas-New Mexico Chapter of the National Electrical Contractors Association will be open to non-member contractors in the future, according to Aubrey Rummel, secretary-manager of the Lubbock group. This is of special significance to the lighting industry, because installers of lighting systems who are not NECA members will be able to gain valuable and helpful information.

► The dollar value of building permits issued in 200 large cities in March rose to the highest level since September 1960, according to Dun & Bradstreet, Inc. However, the March total was down 1.9 per cent from March 1960.

► Businessmen in general are becoming somewhat more optimistic about their prospects for the rest of 1961, a feeling of hope which is based on more than wishful thinking. Manufacturing production has leveled off after sliding downhill for eight months. Sales, incoming business, and unfilled orders all moved up in February. Auto sales have picked up and a broadening of the demand for steel is reported.

► An aluminum industry spokesman recently stated that unfair foreign competition is undermining America's industrial leadership. According to Irving Lipkowitz, who is chairman of the Foreign Trade Committee of the Aluminum Association, foreign manufacturers have unfair advantages which have nothing to do with efficiency or risk-taking. Foreign labor costs are on a much lower level, tax systems abroad are less burdensome on manufacturers, and overseas manufacturers can operate under more liberal depreciation allowances.

► March living costs held at the February record level, which was 127.5 per cent of the 1947-49 average, according to the U.S. Labor Department. Noting unusual price stability for the past six months, one Department official has noted that President Kennedy's economic aid program is beginning to be reflected in consumer prices, and a living cost rise may be near.

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Houdini himself would be frustrated trying to give an old fixture a new look with a wave of his wand. But you can do it — effortlessly — with a Sheffield TU-TONE diffuser. Easy on the pocketbook, too, since costly redesigns are eliminated.

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Sheffield's custom designed TU-TONE diffusers are a sure way to beat the profit squeeze. Easily adapted to new or existing designs, they provide a modern two-color effect at a cost comparable to single color styrene diffusers.

The clear, prismatic bottom is a Sheffield "exclusive". It provides excellent 45-degree cut-off and concentrates transmitted light down on work surfaces for maximum efficiency. TU-TONE diffusers available with all types of return legs for hinging purposes too.

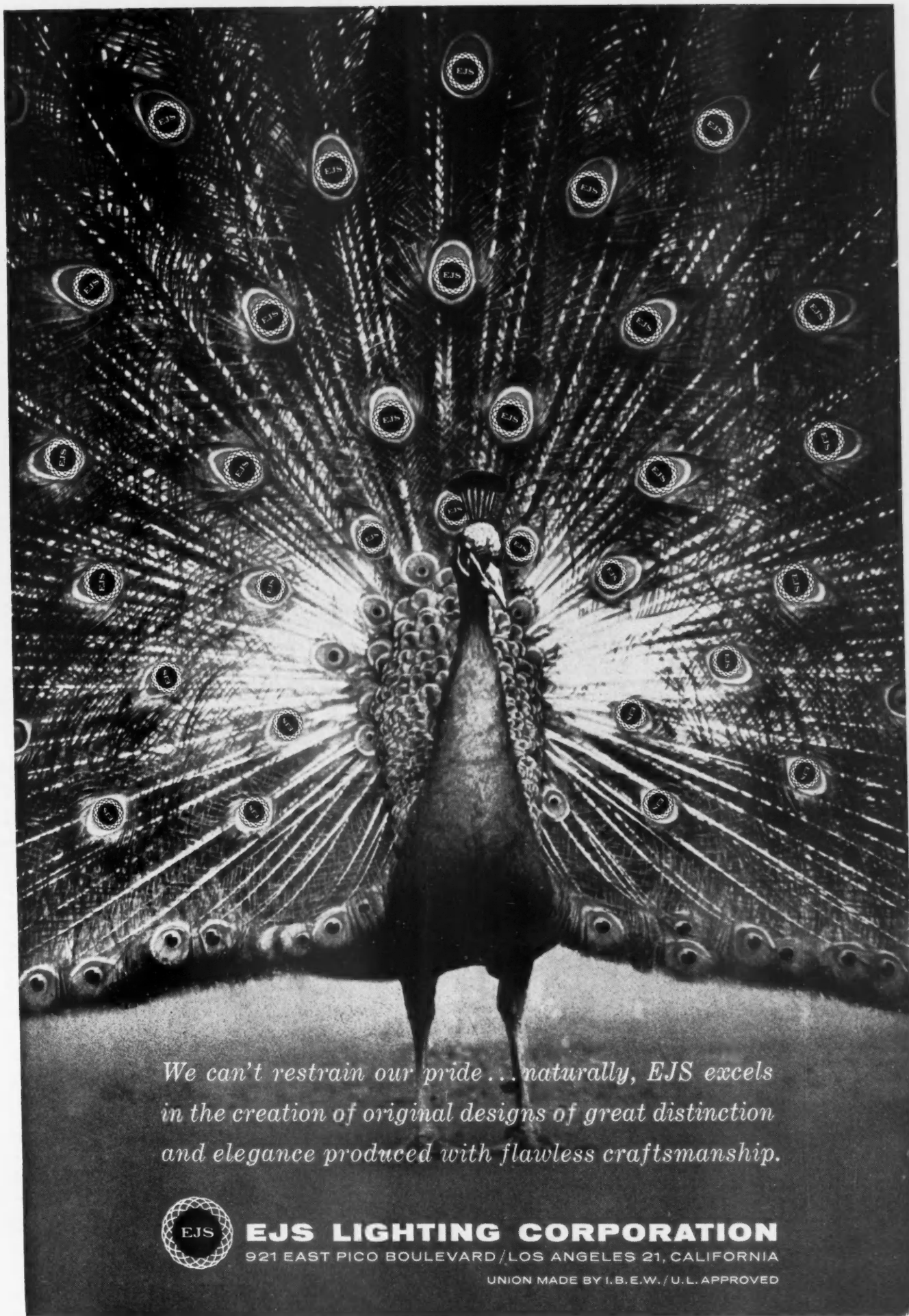
MORE INFORMATION about TU-TONE diffusers or other Sheffield "exclusives" such as FROST-WHITE-X, FROST-WHITE-SE, DIRECTO-LITE or SL-series Prismatic Lenses is readily available. Direct your inquiries to Sheffield Plastics, Inc., Section 11-A, Sheffield, Mass.

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Town
Crier



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No. 408 TOWN CRIER

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This completely new lantern will add charm to any home—Beautifully finished in hand rubbed antique Copper or Swedish.

Many other items available, write for our new miniature catalog.

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ROUTE 17, LODI, N. J.
HUBBARD 7-6305**

CATALOGS & BULLETINS

**Available free to readers
of Lighting upon request**

DEL-VAL HOME FIXTURES—A portfolio describing fixtures for the home is available from Del-Val Manufacturing Co., 519 W. Huntingdon St., Philadelphia 33, Pa. Described are fixtures for every room, plus lanterns, exit lights, swivels, pulleys, etc.

Write No. A-101 on coupon, page 17

MINUTE-MOUNT FIXTURES—A catalog of budget lighting fixtures has been issued by Minute-Mount, a division of Progress Manufacturing Co., Castor Avenue and Tulip St., Philadelphia 34, Pa. The 16-page booklet contains color illustrations of a wide range of fixtures.

Write No. A-102 on coupon, page 17

UNION WEATHERBEST FIXTURES—Union Insulating Co., Parkersburg, W. Va., has issued a four-page bulletin describing and illustrating Weatherbest outdoor fixtures, which are available with a lustrous finish in textured brass or aluminum.

Write No. A-103 on coupon, page 17

SHEFFIELD PLASTIC DIFFUSERS—A pocket folder of several data sheets for plastic diffusers is available from Sheffield Plastics, Inc., Sheffield, Mass. The data sheets describe and illustrate various applications of plastic for fluorescent diffusers, etc.

Write No. A-104 on coupon, page 17

VIRDEN DYNAMICS LINE—A 20-page, full color catalog describes the new Virden Dynamics line of incandescent fixtures designed for offices, lobbies, lounges, motels, restaurants, etc., and is available from Lighting Dynamics, 6103 Longfellow Ave., Cleveland 3, Ohio.

Write No. A-105 on coupon, page 17

ALZAK REFLECTORS—Major Equipment Co., Inc., 4603 W. Fullerton Ave., Chicago 39, Ill., has available two 12-page booklets covering aluminum Alzak reflectors and the Alzak process. The latter is published by the Aluminum Company of America.

Write No. A-106 on coupon, page 17

ELITE IMPORTED FIXTURES—Elite Glass Co., Inc., 111 W. 22nd St., New York 11, N. Y., has issued catalog F-21, a 72-page publication showing imported crystal, bronze, and wrought iron fixtures, wall brackets, and hall lights.

Write No. A-107 on coupon, page 17

ROYAL LAMP STARTERS—Royal Products Co., Inc., 19-21 Grain St., Newark 7, N. J., has issued a bulletin on its line of fluorescent lamp starters. Catalog numbers and prices are included. The bulletin emphasizes the new color packed cartons.

Write No. A-108 on coupon, page 17

HOLOPHANE BANK LIGHTING—Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y., has issued a new brochure on bank lighting, which contains photographs taken of nine different installations. The Holophane consulting service is discussed.

Write No. A-109 on coupon, page 17



so often . . .



the pulley
makes the
difference!

Many a slow-selling fixture has been transformed into a fast-moving item . . . merely by the addition of a pulley. Often, when it comes to the moment of decision, it's the pulley that makes the difference . . . and the difference that makes the sale.

NORD

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and West.



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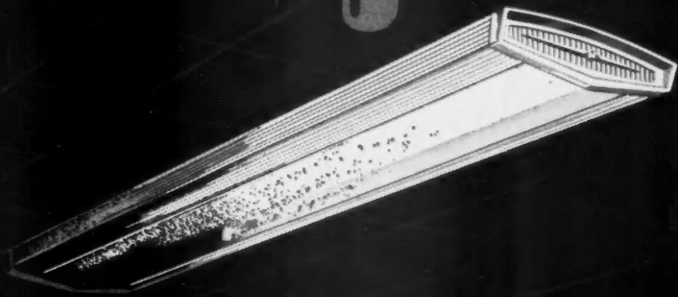
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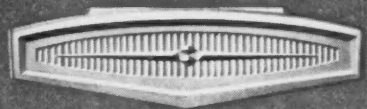
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DISCRIMINATING DIMENSIONS IN LIGHTING

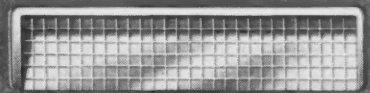
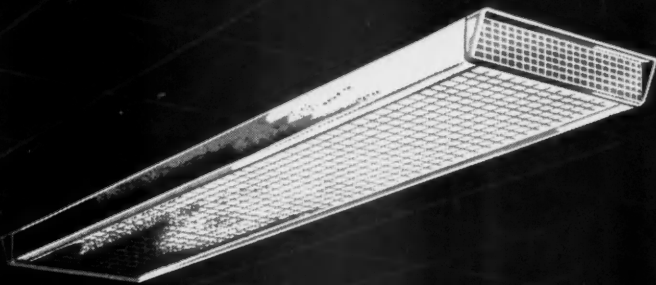
We're proud to offer two of the most distinguished designs available in the market today. Benjamin know-how has combined superior engineering and maximum lighting efficiency in smart, slim fluorescent fixtures, that add the note of distinction to any office or commercial installation. Dramatically decorative . . . competently functional.

No visible metal supports. Can be mounted singly or in continuous unbroken line. Variety of light-diffusing lenses for any purpose. Two or four lamp. Forty-eight inch lengths.



The incomparable **CORONADO**

Here is the latest development in controlled lighting—3 in 1 lens—snap-in wiring channel—only 2 1/4" deep—two types of lens. Designed for surface mounting for all types of commercial lighting—offices, schools, banks and other interiors that require high quality illumination, realistically priced.



The distinctive **Catalina**

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☐ Please send me your new folders on the
Catalina and Coronado

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Firm _____

Address _____

City _____ Zone _____ State _____



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The Geringer
Gal Sez:**

**"WELCOME TO
BIGGER SALES
WITH
GERINGER
FIXTURES!"**

If you'll take your eyes off me for a second —you see the new series with *White* or *Marblized* glass. The 5 light polished brass chandelier (No. 6905) retails about \$84.60. Matching wall brackets, *White* or *Marble Effect*, retails about \$16.50. They are available in wall lantern and 3 light ceiling styles too.

THE LINE DESIGNED WITH YOU IN MIND

GERINGER

L I G H T I N G

GERINGER & SONS MFG. CORP.

Factory & Offices: Peekskill, New York

PERFECLITE LIGHTING EQUIPMENT—A series of catalogs on lighting equipment is available from the PerfecLite Co., 1457 E. 40th St., Cleveland, Ohio. Included are a general catalog and several data folders on contemporary lighting.

Write No. A-301 on coupon, page 17

JAY INCANDESCENT FIXTURES — Jay Lighting Manufacturing Co., 5 E. 35th St., New York, N. Y., has just issued a 12-page supplement that illustrates and describes the newest additions to the hand-crafted Coronet series of incandescent fixtures.

Write No. A-302 on coupon, page 17

PUSHNUT FASTENERS—Assorted bulletins describe and illustrate the line of spring steel Pushnut fasteners which are pushed on unthreaded studs, rod, or wire. This material is available from the Palnut Co., 71 Glen Rd., Mountainside, N. J.

Write No. A-303 on coupon, page 17

SYLVANIA FLUORESCENT FIXTURES—A complete brochure (V-602A) covers broad line of commercial and industrial lighting fixtures, recessed shallow troffers, and air-handling troffers from Sylvania Electric Products, Inc., 1 48th St., Wheeling, W. Va.

Write No. A-304 on coupon, page 17

SARNA LANTERNS FROM INDIA — S. S. Sarna, Inc., 39 W. 19th St., New York, N. Y., has a 95-page catalog showing line of brass lanterns and accessories. All types are available, including drop pendants, wall and ceiling pulleys, chandeliers, and pole types.

Write No. A-305 on coupon, page 17

KIRLIN RECESSED FIXTURES—Catalog No. 79, from the Kirlin Co., 3435 E. Jefferson, Detroit 7, Mich., gives complete information on recessed fixtures, both incandescent and fluorescent. Rapid estimate charts are included to calculate intensities quickly.

Write No. A-306 on coupon, page 17

AMPLEX PORTABLE LAMP—A detailed folder from Amplex Corp., 214 Glen Cove Rd., Carle Pl., Long Island, N. Y., describes the new Trombolite portable lamp that combines fluorescent and incandescent light in an extension-arm design.

Write No. A-307 on coupon, page 17

ANGELO LAMP AND FIXTURE PARTS—Catalog No. 8, which is available from Angelo Brothers Co., 23333 N. Mascher St., Philadelphia 33, Pa., contains a supplement and ten flyer sheets on new items plus net prices of all listed parts.

Write No. A-308 on coupon, page 17

CROUSE-HINDS SPORTS LIGHTING — Crouse-Hinds Co., Syracuse 1, N. Y., has issued a revised edition of its sports lighting bulletin, featuring nearly 100 suggested lighting layouts for sports from archery and badminton through volleyball and wrestling.

Write No. A-309 on coupon, page 17

BENJAMIN INDUSTRIAL UNITS — Lighting units for industrial assembly, sign boards, and gymnasiums are a few of the many units in the new industrial incandescent catalog published by Benjamin Div., Thomas Industries, Inc., 207 E. Broadway, Louisville, Ky.

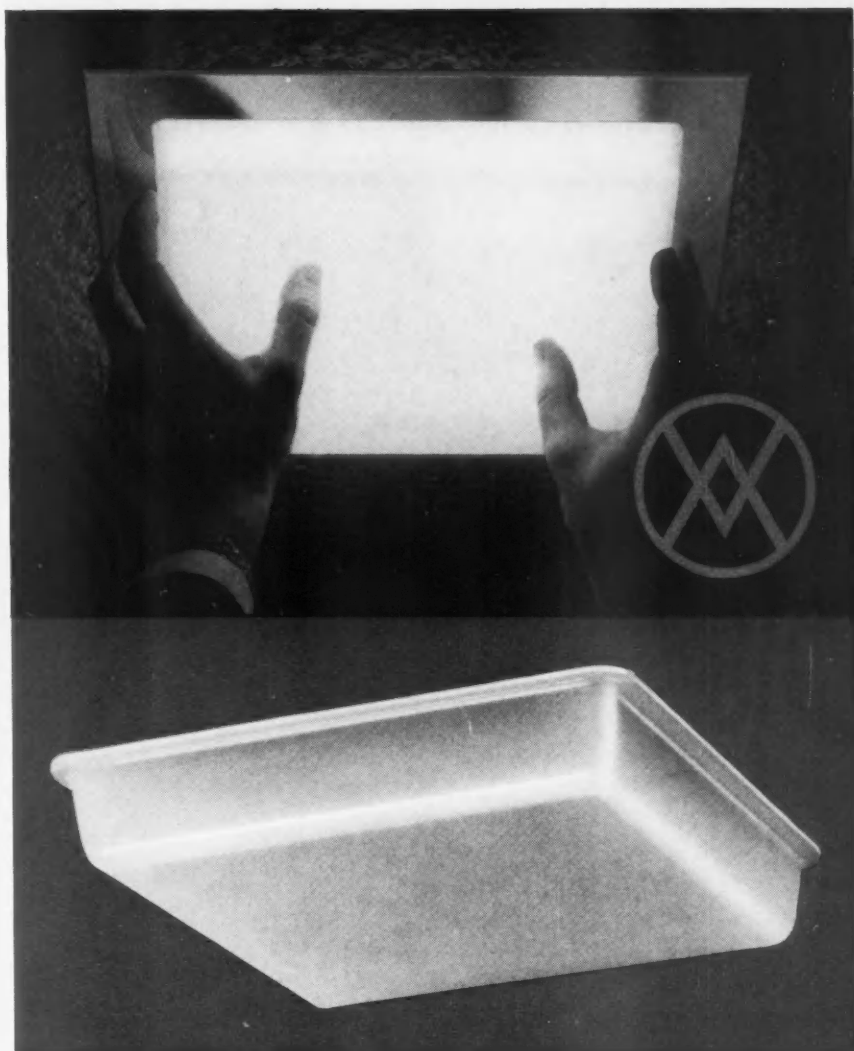
Write No. A-310 on coupon, page 17

Wanted: Manuscripts

The editors of **Lighting** will welcome contributions from the field for publication. Electrical contractors, lighting consultants, electric utility lighting engineers, and others closely associated with the lighting industry are invited to submit articles, photographs, and drawings relating to important lighting installations and developments anywhere in the United States. All articles will be given careful consideration and payment will be made promptly for all material accepted for publication. Write for your copy of **Lighting's "Author's Guide."** Address all communications to

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Magazine**

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A. Cheerful Greeting with this new garden or walk light. Fiberglass shade in tole green and white. Portable or permanent installation. **V-7600**

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C. Dramatize Your Rooms with this modern design. "Square round" white opal globe is accented with strips of walnut and brass. **V-1961**. Note companion piece over stairway.

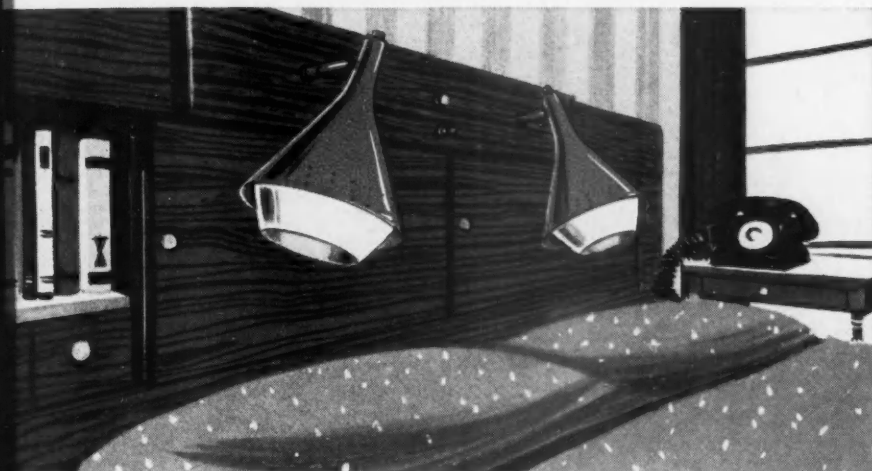
Brighten
sparkling

READ 'N
is polish

Gracious
iced glass
And don



Brighten Your Bath with these new matching fixtures. Milk white glass inlaid with sparkling multi-colored mosaic. V-6515 over mirror. V-6510 at sides.



READ 'N RELAX with these adjustable twin brass designs. Panel is walnut, shade is polished brass with white metal directional inserts. V-6095

Gracious Hospitality with this striking pulldown. Shade has prismatic lens on bottom, iced glass flecked with silver on top. Accents are polished brass and walnut. V-1161. And don't forget valance lighting to bring out the beauty in draperies!



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Now you can add new glamour, new sales appeal to your homes in literally dozens of ways, and do it easily and inexpensively!

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VIRDEN

VIRDEN LIGHTING

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6103 Longfellow Ave., Cleveland 3, Ohio

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Catalog, V-62.

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City _____ Zone _____ State _____

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- in spring tension
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- in plating and finishing
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THE PALNUT COMPANY, 71 Glen Road, Mountainside, N. J.

DIVISION OF UNITED-CARR FASTENER CORPORATION

Canada: P. L. Robertson Mfg. Co., Ltd., Milton, Ont.



PALNUT Lock Nuts and Fasteners

Quick, secure fastening at low cost

VIRDEN BUDGET LIGHTING FIXTURES—Over 130 different Scotch Plaid fixtures are illustrated and fully described in a 16-page catalog available from Virden Lighting, John C. Virden Co., 5209 Euclid Ave., Cleveland 3, Ohio. All types of fixtures are shown.

Write No. A-401 on coupon, page 17

MAJOR STAGE LIGHTING—Major Equipment Co., Inc., 4603 W. Fullerton Ave., Chicago 39, Ill., is making available their latest and most complete catalog of stage lighting and associated control equipment. Lines of various type lights are featured.

Write No. A-402 on coupon, page 17

ELITE GLASSWARE—Elite Glass Co., Inc., 111 W. 22nd St., New York 11, N. Y., has published an 18-page bulletin on lighting glassware, catalog No. 60. The bulletin describes chimneys, hurricane shades, and replacement glassware of all kinds.

Write No. A-403 on coupon, page 17

MEIERJOHAN-WENGLER LIGHTING—A catalog showing fixtures, lanterns, and standards in contemporary and traditional designs custom fabricated in various metals is available from Meierjohan-Wengler, Metalcraftsmen, 1102 W. 9th St., Cincinnati 3, Ohio.

Write No. A-404 on coupon, page 17

APPLETON QUARTZLITE—A four-page illustrated brochure from Appleton Electric Co., 1701-1759 Wellington Ave., Chicago 13, Ill., contains information about the features, dimensions, accessories, and photometric data of the 500-watt Quartzlite.

Write No. A-405 on coupon, page 17

GILL DECORATIVE FIXTURES—Gill Glass and Fixture Co., Inc., Philadelphia 34, Pa., has issued an illustrated 20-page catalog, "Gallery of Lighting Inspirations," featuring an exclusive handcrafted collection of lighting fixtures inspired by the Great Masters.

Write No. A-406 on coupon, page 17

KOPP LIGHTING SERVICE—A 20-page brochure, bulletin 760, describing the Kopp glass engineering and manufacturing service from application analysis and formula development through mold design and production, is available from Kopp Glass, Inc., Swissvale, Pa.

Write No. A-407 on coupon, page 17

CORNING LIGHTING PANELS—An 18-page booklet, "Glass—Integral Component of Quality Lighting," illustrating the use of glass in several prominent lighting installations has been published by the Lighting Sales Dept., Corning Glass Works, Corning, N. Y.

Write No. A-408 on coupon, page 17

ULTRA-VIOLET LAMPS—Black light inspection of printed circuit boards, gear trains, etc., is described in detail in new literature available from Ultra-Violet Products, Inc., San Gabriel, Calif., manufacturer of Blak-Ray black light lamps.

Write No. A-409 on coupon, page 17

GARCY 12-FOOT FIXTURES—A brochure from Garcy Lighting, Chicago 47, Ill., describes guaranteed labor savings with 12-foot speed-line fixtures for schools and offices. Specifications and details are covered along with copy of labor saving guarantee from Garcy.

Write No. A-410 on coupon, page 17

INFORMATION CENTER



**Help yourself to free literature
and more details on any prod-
uct mentioned in this issue.**

Instead of writing a dozen different manufacturers for free literature and more information on products, or services, just insert on the cards below the appropriate key numbers of the items in which you are interested. These cards may be used to get information on products mentioned in the following departments (see Contents Page for page number):

CATALOGS — NEW PRODUCTS — BULLETINS — ADVERTISEMENTS

**Be sure to print or write legibly your name and address—
drop it in the nearest mail box and**

Lighting pays the postage!

MAY, 1961

Send free information on these NEW PRODUCTS and/or services (fill in key numbers):

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Send this FREE LITERATURE (fill in key numbers):

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Send free information on these ADVERTISEMENTS:

Company.....	Page.....	Company.....	Page.....
Company.....	Page.....	Company.....	Page.....

My Name..... Position.....

My Company's Name.....

Address (number and street).....

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MAY, 1961

Send free information on these NEW PRODUCTS and/or services (fill in key numbers):

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Send this FREE LITERATURE (fill in key numbers):

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**These cards
can help
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Lighting

1760 PEACHTREE ROAD, N. W.

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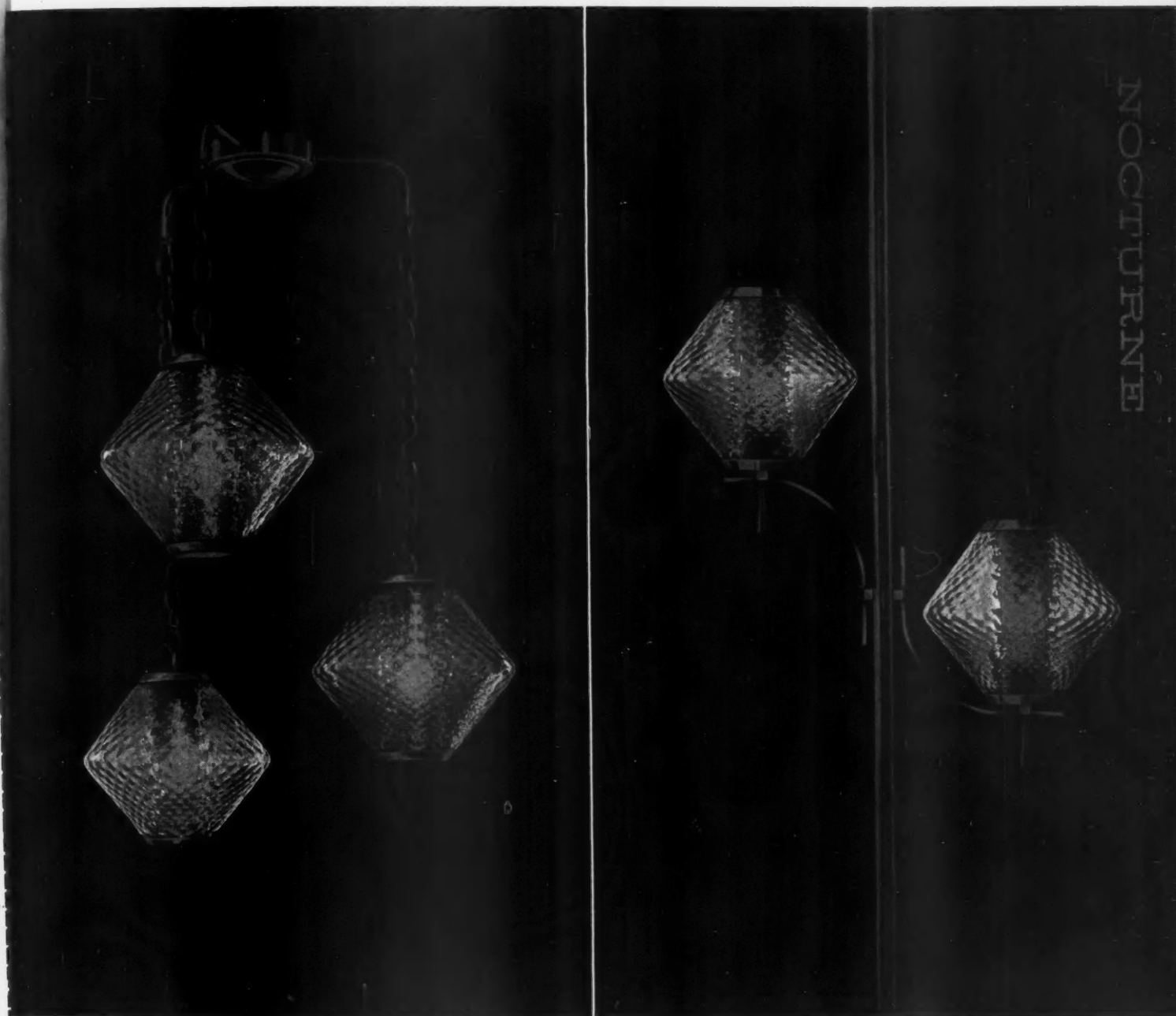
Lighting

1760 PEACHTREE ROAD, N. W.

ATLANTA 9, GEORGIA



THE MATCHED BEAUTY of lamps and fixtures... Lightcraft of California presents companion pieces from the "Nocturne" group. Designed for all lighting applications — executed in hand-blown smoked glass, graceful rectangular brass tubing, and subtle pierced brass cylinders — the complete "Nocturne" lamp and fixture series is shown in our latest full-color supplement. This is one of many exclusive new groupings in our distinguished line of creative lighting, popularly-priced and custom-quality manufactured. For an invaluable sales-aid, qualified distributors are invited to write now for both the new 20-page supplement and current 80-page 1961 catalog.



(not affiliated with any other company)

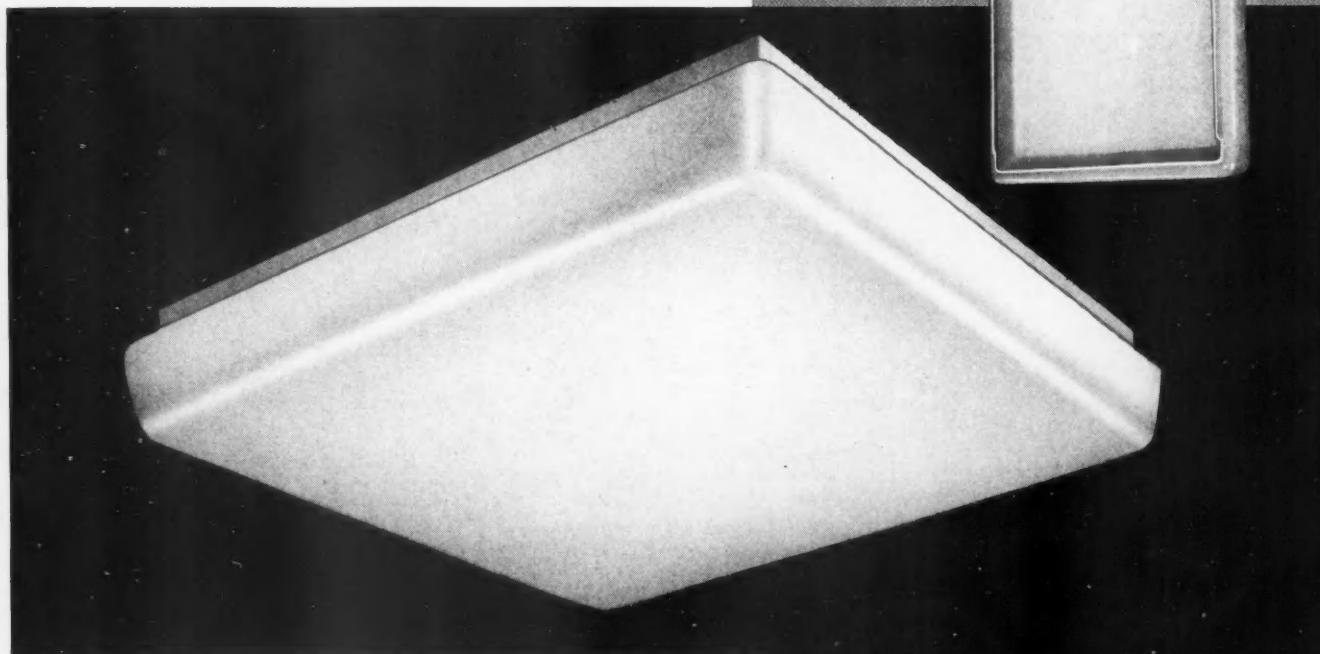


LIGHTCRAFT OF CALIFORNIA

1600 WEST SLAUSON AVENUE
LOS ANGELES 47, CALIFORNIA

NEW

TWO-BY-TWO SURFACE-MOUNTING LIGHTING FIXTURE



GAR-LITE 909

The latest in lighting for lobbies, corridors, small offices, shops, etc., is new in size, new in style, and new in several important features:

NEW SIZE. The 28" x 28"-size is perfect for many areas where large square fixtures or long ones would be out of place. Takes 4 - 20 W, 24" lamps . . . not odd-size or circline lamps as in similar fixtures.

NEW AND UNIQUE DIFFUSER. The shallow (4"), crisply styled diffuser "wraps around" on all four sides. It conceals the chassis in the normal view.

EASY HINGING. The diffuser hinges from either side without latches. Cleaning and re-lamping are quick and easy.

The 909 is fully described in bulletin 61-09. Write, wire or phone for your copy.

DISTRIBUTED EXCLUSIVELY BY GAR-LITE DISTRIBUTORS

GARCY LIGHTING



• •
Her
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con
bur
shin
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both
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wel
Or
doo

new SOLA outdoor mercury-lamp transformer



... plus constant-wattage stability!

Here's the big improvement you've waited for in *mercury lamp ballasting*: a really stable, *parallel-type*, constant-wattage, 2-lamp transformer. Even if one lamp burns out, this new SOLA transformer keeps the other shining steadily.

And SOLA's *constant-wattage performance* protects both lamps and wiring against surge current . . . forestalls flicker by providing complete electrical independence between paired lamps; also, automatically compensates for line-power fluctuations. And the modest starting demand of SOLA constant wattage allows you to install more fixtures per circuit without having to step up wire sizes. The cost advantages are obvious in such installations as: parking lots, shopping centers, service stations, and dock areas.

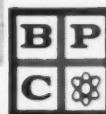
Contact your SOLA representative for details on new 2-lamp outdoor constant-wattage MV transformers, as well as the other indoor and outdoor alternative units. Or write for information, mentioning *parallel MV outdoor transformer*.



- "Paralleling" ends double lamp-outages
- Exclusive constant-wattage design holds lumen output within $\pm 1\%$ for line-voltage changes as great as $\pm 13\%$, assuring full-rated lamp life
- Prevents "drop-out" since input voltage must fall 30% below nominal before lamps extinguish
- Inherent protection against open or short-circuited lamps
- U.L. listed
- Available for 115, 208, 230, 277, 460 and 575-volt input

SOLA

A DIVISION OF
BASIC PRODUCTS CORPORATION



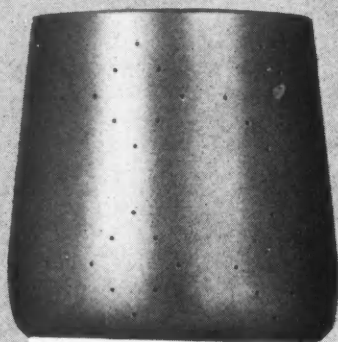
SOLA ELECTRIC CO.
Busse Road at Lunt,
Elk Grove Village, Ill.
HEmpstead 9-2800
IN CANADA, Sola-Basic
Products Ltd., 377 Evans
Ave., Toronto 18, Ont.

NEW

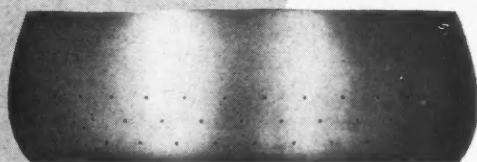
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SHELDON

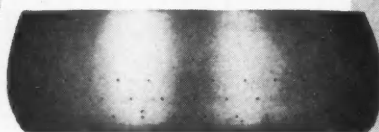
**FLUSH
MOUNTED
CEILING
FIXTURES**



#708



#713



#712

#708 For smart spot effects . . .
a sure seller, mirror brass outside,
white inside, perforated and
adaptable for 3 ring baffle. Top and
bottom diameter 5 1/8" - Ht. 5 5/8"

Perforated Rounds - 2 or 3 light
#713 Ht. 3 1/2" - Top diameter 10 5/8" -
Bottom diameter 10 3/8"

#712 Ht. 3 1/2" - Top diameter 8 5/8" -
Bottom diameter 8 1/4"

SHELDON METAL PRODUCTS CO., INC.

First in Quality Spinning & Stamping

Fall River, Mass.
Tel. OSborne 8-8358

NEO-RAY DIFFUSERS — Neo-Ray Products, Inc., 315 E. 22nd St., New York 10, N. Y., manufacturers of fixtures and ceilings, has published fluorescent lighting catalog No. 12A. The catalog features all modular sizes and types of plastic and metal diffusers.

Write No. A-501 on coupon, page 17

PHOENIX ILLUMINATING GLASSWARE — The Phoenix Designers' Handbook from the Phoenix Glass Co., Monaca, Pa., contains over 180 items of illuminating glassware. Included are Lumina-Line, residential, commercial, and miscellaneous types.

Write No. A-502 on coupon, page 17

EASTERN FIXTURE CHAINS — An illustrated catalog showing chains and related items in actual size drawings is available from Eastern Chain Works, Inc., 309 E. 22nd St., New York 10, N. Y. The folder can be hung as a wall chart.

Write No. A-503 on coupon, page 17

RUBY OIL LAMP REPRODUCTIONS — The Ruby Co., 129 W. 27th St., New York, N. Y., announces the publication of its new 1961 catalog which shows the complete Ruby line of authentic oil lamp reproductions, illustrated in full colors.

Write No. A-504 on coupon, page 17

CIRVAC LIGHTING LOUVERS — A six-page folder on Circlegrid, the new rigid, non-burning vinyl louver for lighting applications, is available from Cirvac Plastics, Box 655, Erie, Pa. The folder contains complete mechanical and engineering data, and specifications.

Write No. A-505 on coupon, page 17

ACME PORTABLE LAMPS — Bulletins are available from Acme Lite Products Co., Inc., Congers, N. Y., describing their complete line of desk and portable lamps. Included is information on the counterbalanced swing type units and the fluorescent inspection lamp.

Write No. A-506 on coupon, page 17

LIGHTOLIER FIXTURES — The 96-page style book from Lightolier, Inc., Jersey City 5, N. J., includes a wide selection of fixtures and lamps of every description for indoors and outdoors. The booklet serves as basic guide for decorating with light.

Write No. A-507 on coupon, page 17

WESTINGHOUSE HIGH-EFFICIENCY LAMPS — A four-page booklet now available from the Westinghouse Electric Corp., Lamp Div., Box 388, Bloomfield, N. J., describes and contains technical data on the company's new high-efficiency fluorescent lamps.

Write No. A-508 on coupon, page 17

PROGRESS BUILDING PRODUCTS — To introduce the most powerful and inclusive building products line in its history, Progress Manufacturing Co., Inc., Castor Ave. & Tulip St., Philadelphia 34, Pa., is distributing its all-new building products catalog.

Write No. A-509 on coupon, page 17

DINI ALUMINUM FIXTURES — A catalog of outdoor lighting fixtures of cast aluminum is offered by Frank Dini Co., Inc., Rt. 17, Lodi, N. J. Lanterns decorated with various figures, as well as post, wall, and ceiling fixtures are included; all designed in Italy.

Write No. A-510 on coupon, page 17

Meet.....THE

STARGLOW

by modern



MEET... THE "STARGLOW"

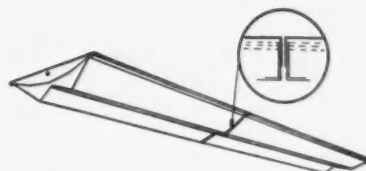
A DISTINCTIVE NEW FLUORESCENT FIXTURE DEvised TO FILL THE NEED FOR AN ULTRA-LOW PROFILE, RUGGED YET BEAUTIFULLY STYLED UNIT. INTERIOR DESIGNERS AND ARCHITECTS WILL FIND THE TIMELESS SYMMETRY OF LINE AND PROPORTION A HANDSOME COMPLEMENT TO TASTEFUL DECOR AND STRUCTURE WHETHER PERIOD OR MODERN.

LIGHTING ENGINEERS WILL FIND THE EMPLOYED PRINCIPLE OF LARGE AREA - LOW BRIGHTNESS GIVES UNPARALLELED ILLUMINATION QUALITY DESPITE THE MOST DIFFICULT FACTORS.

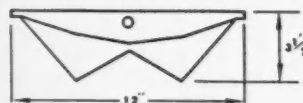
THE STARGLOW HAS BEEN CLEVERLY CONCEIVED TO GIVE EVERY APPEARANCE OF BEING RECESSED WHILE ACTUALLY SURFACE MOUNTED EITHER SINGLY OR IN LINE WITH NO NEED OF ADAPTERS TO JOIN UNITS. IT IS THE FIRST LUMINAIRE EVER BUILT TO FULLY ELIMINATE END PLATE SHADOWS.

A ONE PIECE POLYSTYRENE DIFFUSER PROVIDES UNMATCHED GLARELESS DIFFUSED LIGHT. SEAMLESS AND FULLY SEALED THE DIFFUSER PROVIDES NO PURCHASE FOR DUST AND DIRT THUS MINIMIZING LIGHT LOSS.

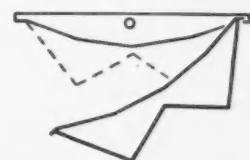
THE ALL WELDED STRUCTURE AND HIGH QUALITY ENAMELED FINISH ASSURE A LONG SERVICEABLE LIFE AT AN EXPENSE LEVEL COMPATIBLE WITH THE MOST MODEST LIGHTING BUDGET.



END PLATE CONSTRUCTION PROVIDES VIRTUALLY UNBROKEN ROWS OF GLOWING ILLUMINATION



OVERALL SIZE SHOWS COMPACTNESS AND RECESSED APPEARANCE OF UNIT.



HINGED FROM EITHER SIDE PROVIDES EASY ACCESSIBILITY FOR INSTALLATION OR MAINTENANCE.

USES TWO RAPID START LAMPS
Catalog No. 23 U4-R2K4

BUT DESCRIPTIONS ARE HARDLY ADEQUATE: YOU SHOULD SEE THE FIXTURE ITSELF. SAMPLES AVAILABLE AT USER'S COST OF

\$18.95

ATTRACTIVE TERRITORIES AVAILABLE FOR QUALIFIED MANUFACTURER'S REPRESENTATIVES

modern
LIGHT COMPANY of *St. Louis*

MODERN LIGHT COMPANY OF ST. LOUIS
7809 MAPLEWOOD INDUSTRIAL COURT
ST. LOUIS 17, MISSOURI

Gentlemen:

- ☐ Please send sample of Fixture at user's price.
- ☐ Please send illustrated catalog page and design information.

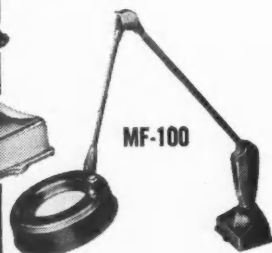
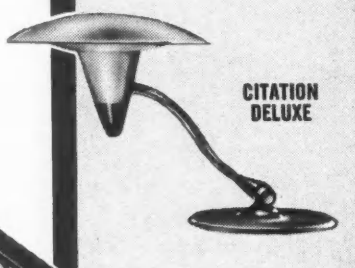
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**PORTABLE
LIGHTING
DESIGNED
FOR PROFIT
AND
PRICED
TO SELL**

**OVER 30
FAST-SELLING
DESIGNS**

Write for complete
illustrated catalog
and price lists

Modern lines and functional designs combined with quality, manufacturing and sensible pricing. The completeness of the line and versatility enables you to offer portable lighting for office, industry and home. ACME's portable lamps are carefully designed for the best possible lighting characteristics and are skillfully manufactured and finished to assure customer satisfaction and repeat sales. **SELL MORE . . . EARN MORE** with ACME Portable Lighting.



The "QUALITY"
name in
portable lighting

UNIVERSAL FLUORESCENT BALLASTS—A new catalog covering extensive data on fluorescent lamp ballasts is now available from Universal Manufacturing Corp., 29-51 E. 6th St., Paterson 4, N. J. A wide variety of ballast types is covered by specifications.

Write No. A-601 on coupon, page 17

KERRIGAN STANDARDS—Two catalogs on standards are available from Kerrigan Iron Works Co., 11th and Herman St., Nashville 2, Tenn. One describes octagonal tapered steel and aluminum equipment; the other aluminum round tapered equipment.

Write No. A-602 on coupon, page 17

G-E TEXTILE LIGHTING—The importance of improved lighting in textile mills is the subject of a 12-page, two-color publication announced by the Large Lamp Department of the General Electric Co., Nela Park, Cleveland 12, Ohio.

Write No. A-603 on coupon, page 17

LANCASTER LIGHTING GLASSWARE—An illustrated portfolio with prices covering monstone diffusers, swimming pool lenses, shower light lenses, and other lenses for lighting is available from Lancaster Glass Corp., Lancaster, Ohio.

Write No. A-604 on coupon, page 17

FREEMAN FIXTURE PARTS—A catalog from Freeman Products Corp., 407 Broome St., New York 13, N. Y., describes their line of steel and brass screw machine parts and stampings, screw machine swivels, plastic tubing, and plastic and wood parts for fixtures.

Write No. A-605 on coupon, page 17

PRECISION PHOTOCNTROLS—Adapting photocontrols to any outdoor lighting fixture is simplified for management and installation personnel with a new 24-page data file just released by Precision Multiple Controls, Inc., 233 Chestnut St., Ridgewood, N. J.

Write No. A-606 on coupon, page 17

KEYSTONE FIXTURES—Keystone Electric Mfg. Co., 2228 E. Tioga St., Philadelphia 34, Pa., announces the publication of its 1961 color catalog, including full information on a complete line of fluorescent fixtures, commercial and industrial.

Write No. A-607 on coupon, page 17

VICKERS THEATER LIGHTING CONTROLS—A new bulletin issued by Vickers, Inc., Electric Products Div., 1815 Locust St., St. Louis 3, Mo., provides information on Vickers theatrical control products and systems which can be matched and unitized.

Write No. A-608 on coupon, page 17

SIDE-A-LITE BALL-JOINT SWIVEL—A brochure from Side-A-Lite, P. O. Box 2138, Alhambra, Calif., describes a new design swivel, a large non-wearing nylon bearing with positive adjustment in any direction. Straight, push-through wiring is possible.

Write No. A-609 on coupon, page 17

GLOBE FLUORESCENT TROFFERS—An illustrated 44-page handbook of recessed fluorescent equipment is available from Globe Lighting Products, Inc., 1710 Flushing Ave., Brooklyn, N. Y. The booklet features Miracle Door modular troffer units.

Write No. A-610 on coupon, page 17

APPLETON VAPORTIGHT FIXTURES—Appleton Electric Co., 1701 Wellington Ave., Chicago 13, Ill., is re-issuing their 20-page bulletin 5-A. Detailed descriptions and dimensional data for the V-51 series convertible vaportight lighting fixtures are included.

Write No. A-701 on coupon, page 17

MARVAL RESIDENTIAL FIXTURES — Marval Lighting Fixture Co., 248 N. 8th St., Brooklyn 11, N.Y., has issued a 12-page color catalog describing unusual values in residential fixtures. With 68 illustrations, the catalog simplifies selection and ordering.

Write No. A-702 on coupon, page 17

PURITAN TEXTURED GLASS—Puritan Lighting Fixture Co., 21-25 Boerum St., Brooklyn, N.Y., has introduced a new line of residential fixtures to celebrate its 36th anniversary, and the line is described in their illustrated "Fabulous Textured Glass" brochure.

Write No. A-703 on coupon, page 17

STONCO BRACKETS AND FIXTURES — Stonco Electric Products Co., Kenilworth, N.J., has issued catalog PB61 illustrating their new line of completely weatherproof prismatic wall brackets and ceiling fixtures for all exteriors requiring clean styling.

Write No. A-704 on coupon, page 17

WESTINGHOUSE LIGHTING — A new booklet, "Lighting for Merchandising," is now available from the Westinghouse Electric Corp., Lighting Div., Edgewater Park, Cleveland, Ohio. The eight-page booklet has many examples of high quality lighting.

Write No. A-705 on coupon, page 17

H. G. METALS SWIVELS—H. G. Metals, Inc., 1355 Atlantic Ave., Brooklyn, N.Y., has available a complete catalog on the company's line of one-piece solid brass swivels, all of which are UL approved, and are obtainable with lacquered polish finish.

Write No. A-706 on coupon, page 17

HOWARD MILLER FIXTURES—Two- and four-page catalogs illustrate the famous bubble and net lights and bubble cluster fixtures designed by George Nelson for the Howard Miller Clock Co., Zeeland, Mich. The catalogs specify dimensions, price, and finish.

Write No. A-707 on coupon, page 17

MIROFLECTOR STANDARDS — Miroflector Co., Inc., Inwood 96, N.Y., is offering a catalog containing a complete program for all incandescent fixture needs. It contains over 100 pages and has over 1,000 new applications of architectural specials and standards.

Write No. A-708 on coupon, page 17

DURO-LITE BULBS—A four-page booklet describes the Fluorescent bulbs made by Duro-Lite Lamps, Inc., 2321 Hudson Blvd., North Bergen, N.J. These long-life decorative bulbs feature a gas-like flame, and can be burned outdoors in any type weather.

Write N. A-709 on coupon, page 17

ROTUBA EXTRUSIONS—Rotuba Extruders, Inc., 437 88th St., Brooklyn 9, N.Y., has published a 22- by 28½-inch double-sheeted, pamphlet-like brochure, depicting almost 200 of their custom-designed and standard rigid die shape extrusions used to control light.

Write No. A-710 on coupon, page 17

TWO SPARKLING IMPORTS FROM JAY'S FABULOUS CHANDELIER COLLECTION

J 160

Radiant iridescent
gunmetal and gold



J 159

Cast bronze, hand
cut glass panels
and polished crystal,
amber or emerald
pendeloques



Now available—new catalog Supplements 61A and 61B. Address Dept. L461.

JAY LIGHTING MFG. CO., Inc.
New New York Showrooms—5 East 35th Street
Creators of the luxurious hand-crafted Coronet Series
DISTRIBUTORS IN PRINCIPAL CITIES

GUTH multi-mount EXITS



THE FIRST ALL-NEW "EXITS" ... since *doors* were invented!

A slight overstatement, maybe. But these Guth Exits DO introduce a lot of new ideas.

DESIGN-WISE — They're on the elegant side. A dramatic new shape with trapezoidal housing. Guth quality construction throughout. No screws to unlatch on face-plate doors. Doors lift up and swing open for easy servicing. The face slants to point directly at the natural "line of sight."

THREE LAMP SOURCES — Your choice of Incandescent, Fluorescent or those new, right-out-of-the future Electroluminescent panels.

FIVE MOUNTINGS — Whatever you prefer! Drawings below show complete selection.



Top Mounted



Surface Mounted



Recess Mounted



End Mounted



Triangular

One piece, die-formed, hinged Face Plates: All glass or cut out metal letters with glass behind.

ASK FOR COMPLETE NEW "EXIT" CATALOG

I. B. E. W.
Union made
and wired



brascolite

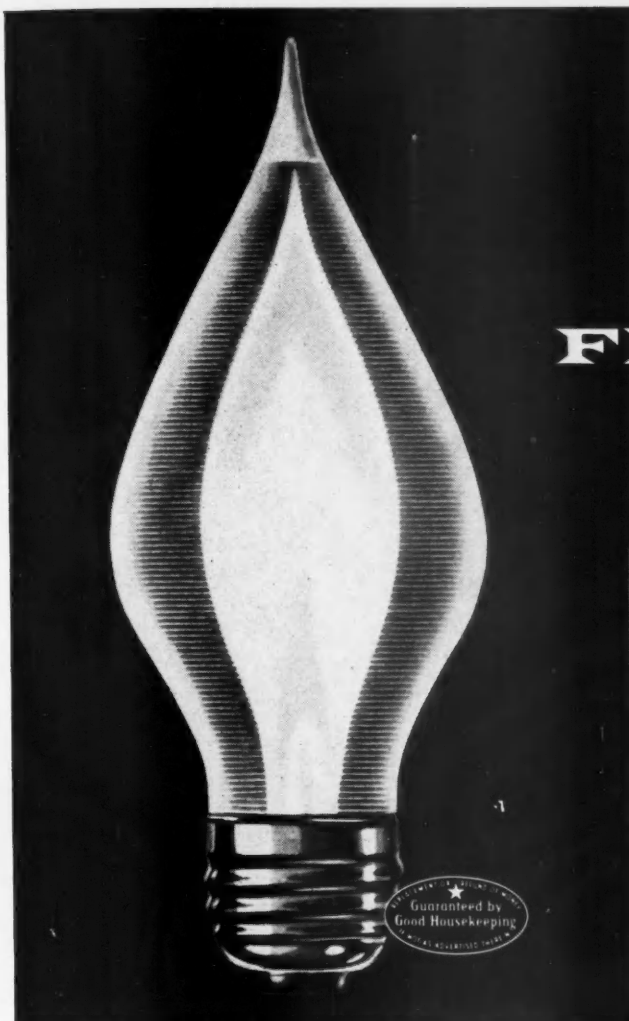
2615 Washington Blvd., Box 7079, St. Louis 77, Mo.

Are You Making Use of Our Reader Service?

The editorial and business staffs of LIGHTING MAGAZINE are eager to serve you. One way in which we can help you is to make it easy for you to draw upon the wealth of technical and promotional material available from manufacturers.

In the accompanying pages are the descriptions of scores of useful catalogs, application information booklets, and technical publications. These are available without charge.

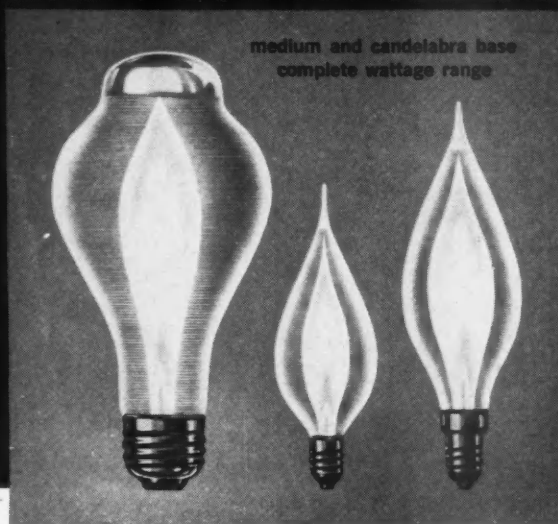
Check over the list of publications available, indicate the numbers of the ones you want on the postage-paid card to be found on page 17, and mail it to us with your name, title, company, and address plainly written. We will tell each manufacturer to send directly to you the information you want.



duro-lite[®]

FLAMESCENT[®]

*the light bulb with
"gas-flame" charm*



Finishes, formulae, processes Reg. U. S. Pat. Office. Cooling Crown U. S. Patents Pending. ©1961 Duro-Lite Lamps, Inc.

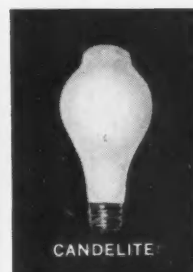
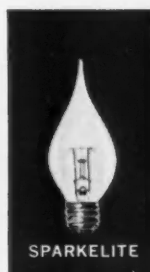
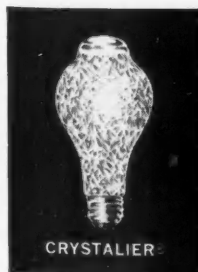
MAKE YOUR BULB BUSINESS BIG BUSINESS WITH AMERICA'S MOST SUCCESSFUL NEW DECORATOR BULBS!

Flamescent is one of the most phenomenal success stories in light bulb history. Another Duro-Lite original—unique in design, and precision-engineered for long-life, like the rest of the famous Duro-Lite line. Literally sells on sight—to consumers, decorators, contractors, lighting consultants. Duro-Lite bulbs offer you an exceptionally **BIG** profit opportunity. Check these features:

■ Superb decorative effects! Instant appeal to consumer and professional—for chandeliers, sconces, postlites, etc. ■ Lasts 3 times longer!

Unconditionally guaranteed. ■ Powerful Consumer Advertising! "As seen in" Good Housekeeping, Saturday Evening Post, Look, House & Garden, Living, House Beautiful, New Yorker. ■ Smartest packaging! Tested merchandisers! Plus a host of promotion aids to make your selling easier, faster.

Higher unit sale—Top dollar volume—Longer profit! Duro-Lite can make your bulb business big business! *Write for complete information!*
DURO-LITE LAMPS, INC., NORTH BERGEN, NEW JERSEY



AMERICA'S MOST COMPLETE LINE OF LONG-LIFE BULBS



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N.J.

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Ge
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the
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site
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win
plu
gar
(ab
do
inf
cal

LIG

Modern homes need 'total lighting'

Lighting too often is not considered as a requirement for home livability, and as a result few new houses even today have well-designed illumination

By Myrtle Fahsbender, Director Residential Lighting, Westinghouse Lamp Division, Bloomfield, N.J.

◆ Only a minute fraction of the thousands of model homes visited annually by Mr. and Mrs. Consumer exhibit today's many lighting techniques that can be incorporated into a house to increase its comfort, beauty, and salability.

In the real estate and building sections of your local newspapers

scan the list of items for modern living which the copy says are, "things that people do not want to compromise."

The impressive list includes wall oven, counter-top range, automatic dishwasher and food waste disposal, wood-paneled family room, outdoor patio, sliding-door closets, and swimming pool, to mention some of today's indispensables.

Seldom does one see any mention of modern lighting unless the

local electric power company is actively supporting a Total Electric Medallion Home program, and even then the mention is often a single word, *lighting*. Glamour is added to the real estate copy by saying *sliding-door* closets, not just closets.

Why not a bit of glamour added to lighting, such as under-cabinet and over-sink lights, luminous ceiling in bath and dressing rooms, so many feet of valance lighting (or cornice or cove as



General lighting on one side of this living room (opposite page) is provided by the upper cone of the wall bracket and the open-top table lamp (which should be a couple of inches shorter), and on the opposite side of the room by 12 feet of fluorescent lighting in a valance across a window-wall. Spill light from the valance plus exterior wall brackets and portable garden lights extend the use of the patio (above) into the evening hours. Folding doors separate the living room from the informal family-dining area, behind the cabinet area containing the television set.

The family-dining room (separated from the living room, opposite page, by folding doors) faces into the kitchen, and both rooms share the service entrance and children's play court. A closed-top valance conceals 12 feet of fluorescent lighting; another fluorescent strip at the bottom of the shelves highlights the built-in counter surface. A dimmer-controlled pulley fixture provides flexible illumination at the table, from a high level for eye work to a more subdued glow for pleasant dining. Three mushroom type garden lights illuminate the walks outside for safety.





Among some architects and interior designers there exists today a yen for using coach-type lanterns in bathrooms. Using low-wattage bulbs in these decorative lanterns is satisfactory for low-level night lighting, if light for seeing is provided by more utilitarian units as in this bathroom. The enclosed stall shower has a vaporproof unit, the large glass ceiling globe uses two 75-watt bulbs, and two 40-watt warm white deluxe fluorescent tubes are recessed over the lavatory and counter. This combination and placement of lighting units provides general illumination and local lighting at the large mirror where the light-colored counter top reflects light upward. Better light reflection would have resulted if the walls were of a lighter surface finish.

The five- by seven-foot area of this two-compartment bathroom contains the tub and twin lavatories and is lit by five 40-watt warm white deluxe fluorescent tubes above a corrugated plastic ceiling. It would be advantageous in reflecting light if tile, lavatories, and counter-cabinet surfaces in modern home bathrooms could be kept light in color, especially when the lighting system is a luminous or louvered ceiling. Too often dark surfaces are used which absorb much of the light.





In this house, kitchen and family room share the same lighting system: direct-indirect fluorescent valance lighting extending 36 feet around the open shelves and cabinets, plus six fixtures recessed in the ceiling. The latter are controlled by a dimmer located on the wall above the circular table. At the right behind the island partition is a view of the wall-hung cabinets that began in the dining room. The lighting is described in the caption below.

The cathedral roof line offers space for a direct-indirect cove lighting installation across the 32-foot length of one wall in this large guest-entertainment center. Steps at the left (not shown) lead down from the center into this dining room and kitchen-family room, at the right. Wall-hung cabinets extend from stairs at left across length of the 20-foot wall which terminates at entrance to family room, shown in photo above. A continuous line of light from fluorescents concealed by a wood apron accents flowers, serving dishes, and the extended surface of the cabinet top. One 100-watt downlight is centered over the dining table and four others form a diamond-shaped pattern in the ceiling over the table with all five units controlled by a step-type wall dimmer. The light floor in the passage from dining to kitchen-family areas reflects light upward from three recessed downlights.



Panels of circular grid plastic form two sides and bottom of a louvered installation which conceals 12 96-inch fluorescent tubes mounted on the true sloping ceiling. In addition to this general illumination, local lighting at the countertop range is provided by incandescent bulbs under the ventilator hood, while fluorescent strips extend under the full length of the wall cabinets to illuminate sink and counter space.

the case may be), accent spotlights over planter, room divider, or fireplace, electroluminescent safety lights in halls and bath—man's newest light source—and so forth.

Are we failing to dramatize lighting because the lighting industry has so long considered home lighting an "also ran?" If so, then why should we expect the allied fields of architecture, building, and design to reflect a higher appraisal?

No matter whether the house or apartment has two or ten rooms — no matter the price — "total lighting" can make the space more livable and more attractive.

What is total lighting? A home that has total lighting is one in which lighting has been planned to provide light for comfortable seeing, light for safety, and light for beauty — indoors and outdoors.

Outdoors, it means lighting that provides: an over-all pleasant exterior impression—safety to walk from sidewalk or driveway up a walk and steps—cheerful, non-glaring light at all entrances and at the garage—protective lighting by floods strategically located—nighttime use of patio, garden, cooking, and game areas for outdoor living.

Some of the ways in which the Westinghouse Total Electric mod-

el homes met these outdoor lighting requirements were presented in the April issue of *LIGHTING*. This second half of the story of total lighting for Total Electrical Living discusses interior lighting ideas.

Indoors, total lighting is lighting that provides: an over-all pleasant level of background lighting in a room—quantity lighting of good quality for seeing: reading, sewing, studying, food preparation, hobbies, cleaning, etc.—lighting as a means of interior decoration: to highlight pictures, planters, books, fireplaces; to accent color and texture of fabrics, wall coverings, and furnishings—a choice of lighting effects by the



In this Total Electric Home the kitchen-dining area is lighted by three fixtures providing general illumination, 19 feet of continuous under-cabinet and over-counter lighting, and a pulley fixture hung over table. Open-top 12-foot fluorescent valance across window and wall recess lights family-entertainment area. Decorative wall lamp at left (not shown) with three plastic bullets casts highlights and shadows across shelving.

use of more than one lighting technique within a space—a selection of light levels as a means of creating moods and atmospheres as the occasion may demand.

The interiors shown here illustrate lighting techniques incorporated by the architects who designed some of the Westinghouse Total Electric Homes.

Take a careful look at the illustrations in this article (parts one and two) and it will become very evident that they are nighttime photographs, because pictures taken in the daytime would have been less effective in showing the lighting equipment and the results obtained.

Model homes which are truly

model homes lighting-wise, with lighting effects incorporated to complement today's living, should be kept open for inspection at night. During the daylight hours most lighting is literally washed out by bright sunlight.

If some of the so-called model homes which appear so attractive in daytime garb could be seen at night the glamour would be lost in the stark reality that the house is actually a daytime house, not a "to-be-lived-in" home at nighttime, which is usually when the family is together and when the family entertains.

The building industry and those sponsoring model homes might take a valuable lesson from the

changing buying habits of the American family, which shops together at night and over the weekend so that dad and the children have a voice in what is being considered for the family.

A look at the nighttime activities around any shopping center anywhere in the country will bear out this statement.

For the building industry, and for the lighting industry in particular, ours must be a nighttime exposure as well as a daytime exposure. No one will dispute the statement that exposure to good lighting and a variety of lighting techniques is the first step toward an awareness and appreciation of
(Continued on page 53)

Relighting provides 200 footcandles

Extensive modernization shows what can be done to make existing structures meet new standards



This night view of the Rochester Gas and Electric headquarters building shows the first results of the \$1.5 million modernization of the lighting, heating, and air conditioning systems in the 35-year old structure. Modernization has been completed on the fifth, sixth, and seventh floors.

◆ New commercial buildings incorporating the latest illumination techniques stress the growing acceptance of the need for good lighting, but also of significance to the industry are older buildings being relighted to high levels, because the vast majority of buildings were constructed when recommended levels were much lower and because a radical improvement in working conditions can result when *existing* structures are given a well-planned lighting treatment.

Such is the case with the Rochester Gas and Electric Corporation's 35-year old headquarters building in New York State, which is being modernized and relighted to such an extent that it is expected to be up-to-date even in the 1970's.

Chief feature of the program involves integration of the building's lighting, heating, and air conditioning, as developed recently by General Electric illuminating engineers.



Luminous ceilings in the offices provide over 200 footcandles. Lamps furnish heating as well as lighting.

es for utility's 35-year old building

When completed, the building will have:

- (1) lighting levels at 200 footcandles, about four times higher than before, making the building one of the nation's best lighted;
- (2) air conditioning on the second through tenth floors, instead of just on the street-level; and
- (3) much of the structure's heating requirements supplied by the lighting system.

Renovation of three floors of the ten-story building has been completed, and the others are expected to have received the improvements within the next 12 months.

Total cost of modernizing the lighting, heating, and air conditioning systems in the 150,000 square foot structure will be approximately \$1.5 million. This involves \$600,000, or \$4 per square foot, for the lighting, and \$900,000, or \$6 per square foot, for the air conditioning and heating.

"We are proud of this project

not only because it will give our 900 employees a more efficient, pleasant, and comfortable place in which to work, but also because we believe it will give added impetus to Rochester's urban renewal program," said Leo H. East, RG&E executive vice-president.

He pointed out that a brighter, more attractive and modern building would set an example which owners and operators of other downtown buildings would seek to emulate.

"This project represents a business investment to RG&E," he said. "We are in the business of selling improved lighting, heating, and air conditioning. Yet our lighting has been below minimum standards recommended by the Illuminating Engineering Society and independent authorities, and we have had no air conditioning except on the street level.

"We intend to use our renovated building as a demonstration area to show potential customers

the attractiveness, low cost, and practical benefits of a modern, integrated lighting, heating, and air conditioning system.

"If the remodeling increases the efficiency of our employees by even one per cent," Mr. East said, "we estimate that the improvements will more than have paid for themselves."

The 200-footcandle lighting system, now completed on the fifth, sixth, and seventh floors, largely employs General Electric's new, configured Power Groove fluorescent lamps as the light source. After gaining experience with the three test lighting systems on these floors, RG&E plans to apply one of them to installations on the other seven floors.

Preliminary plans for the lighting called for a system which would consume five watts per square foot. This was approximately the amount of power required for the old incandescent system. Lighting levels were to be about 100 footcandles.



Troffer lighting takes care of the lower ceiling situation which is found in passageways between the offices.



The cavity depth above the luminous ceiling varies in different areas. In some places it is a maze of pipes, conduit, and ducts. Three floors of the building have already been renovated by the company.



Recessed and suspended units light the recreation room, used for lunch, breaks, meetings, and parties.



Two-lamp surface-mounted units with wrap-around plastic shielding are used to light remodeled restrooms.

Before final plans were developed, however, the new IES minimum recommended footcandle levels for office lighting were published. With 100 footcandles barely the minimum recommended by the IES for general office work, and 200 for drafting, RG&E decided to strive for 200 footcandles maintained throughout the building.

Studies indicated this lighting level could be obtained within the power limit of ten watts per square foot set by the utility's air conditioning engineer. This would give the building more than 13 times the lighting level of the 1926 installation for only 3.3 times the power consumption.

Going to 200 footcandles cost much less than expected, and "nowhere near" double the cost of installing a 100-footcandle system.

RG&E believes that the benefits of higher lighting levels will more than compensate for the increased owning and operating

costs. Primary among the economic considerations is the potential effect of improved lighting on increasing employee efficiency by providing conditions for faster, easier, and more accurate seeing.

Assuming one \$4,000 per year office worker for each 100 square feet of floor area, and an increase of lighting load from three to ten watts per square foot, the utility expects it will take an improvement of worker efficiency of less than one per cent to offset the increased owning and operating costs.

The system used on the sixth floor is a standard louverall installation, with single-lamp Power Groove fixtures mounted above two- by four-foot grids using Circlegrid louvers for shielding.

The lamps are spaced 30 inches on center, and mounted 23 inches above the louvers in a new section of the building and 18 inches in the older section. Reflectors are used above the lamps in the new section.



Control equipment provides for accommodation of temperature choice in the uniformly lighted offices.



The men who planned the building modernization for RG&E and who are now engaged in carrying out the plan are, from left to right, Walter G. McKie, general sales manager; John Hershey, General Electric Co.; James J.

McConnell, assistant chief engineer; Les Twichell, assistant manager of commercial and industrial sales; William F. Dewey, chief engineer; Norman Kridel, lighting engineer; and Rialto Cherne, consulting engineer.

The second system—that on the seventh floor—features open-top, two-lamp Power Groove troffers recessed in a plastic louvered ceiling. The louvers are standard Circlegrid between the fixtures, and a higher-density Circlegrid directly under the lamps.

A brightness ratio of two to one is obtained in this manner. The finished ceilings on this and other floors are maintained at 8.5 feet, just two feet lower than the original ceiling.

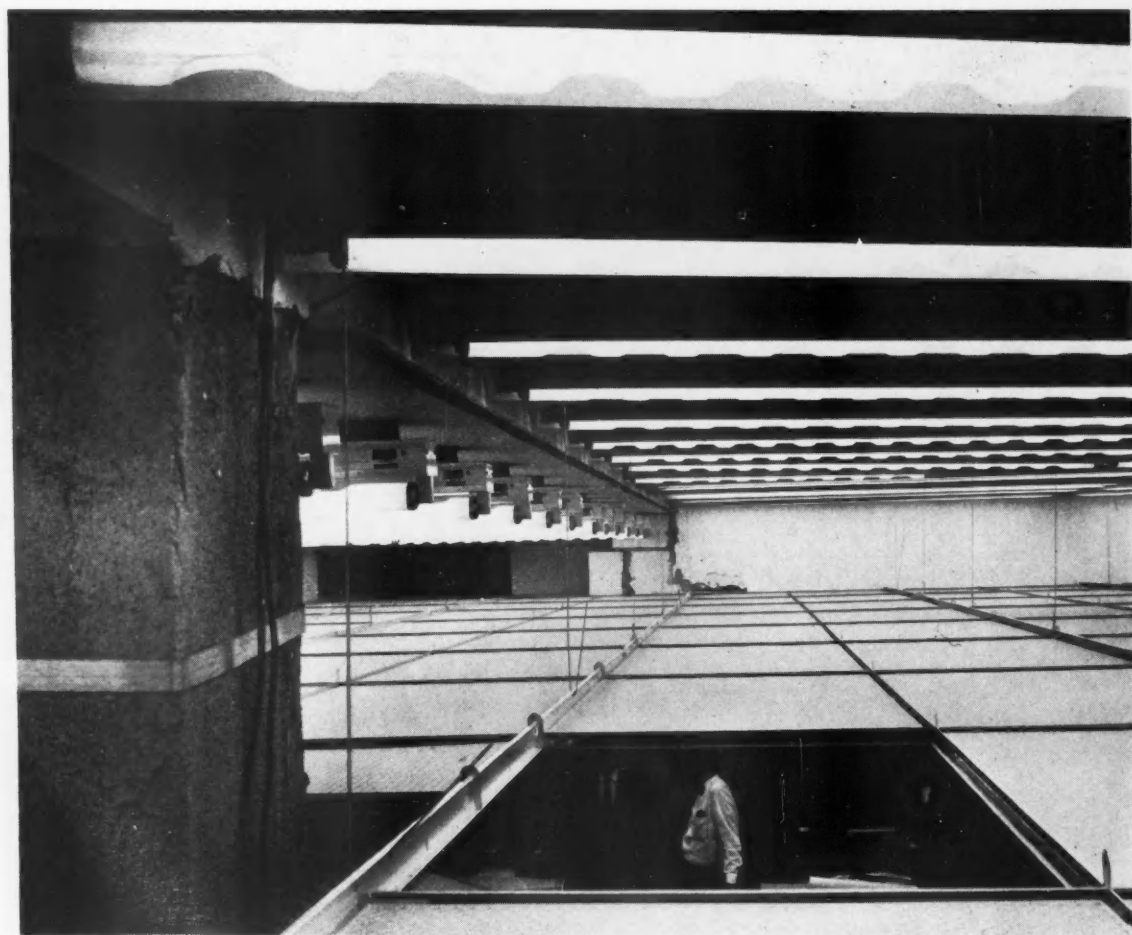
The third system, installed on the fifth floor, features elements four by eight feet, with four Power Groove lamps in each. Between these elements, and in the fixtures themselves, aluminum louvers which have been painted white are installed.

Lighting in the elevator lobbies is supplied by standard four-lamp, 40-watt, surface-mounted units with Corning 70 glass. Corridors have two- by four-foot, four-lamp recessed troffers.

(Continued on page 68)



Integrating the lighting, heating, and air conditioning of the building required careful use of available space. The complexity of the installation is hidden by the evenly lighted, attractive, and functional ceiling.



Adequate ceiling height has been kept in spite of the suspension of plastic louvers on the three floors.

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New Impact Lustrex perma tone provides extra toughness and flexibility for snap-fitting to metal parts, high resistance to abnormal abuse, and lighter weight through thinner walls. Write for comprehensive technical report on both types of perma tone, including accelerated aging test results and other valuable data on styrene in lighting, to Monsanto Chemical Company, Plastics Division, Room 801, Springfield 2, Mass.

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MONSANTO INNOVATOR IN **PLASTICS**

High illumination aids production

Six runs of plug-in busway guarantee flexible lighting

By John R. Coady, Lighting Field Editor, Louisville, Ky.

◆ Power Groove fluorescent lamps were found to be the most efficient source for general lighting at Boone Box Company's new 100,000 square foot plant in Louisville, Ky.

"It is amazing," says William Miller, president of the firm, "what a high level of illumination can do to keep plant morale high."

The primary product of this new modern plant is not corrugated boxes, although they do produce some, but the making of stiffeners. Commonly these stiffeners are "corner posts" for corrugated containers.

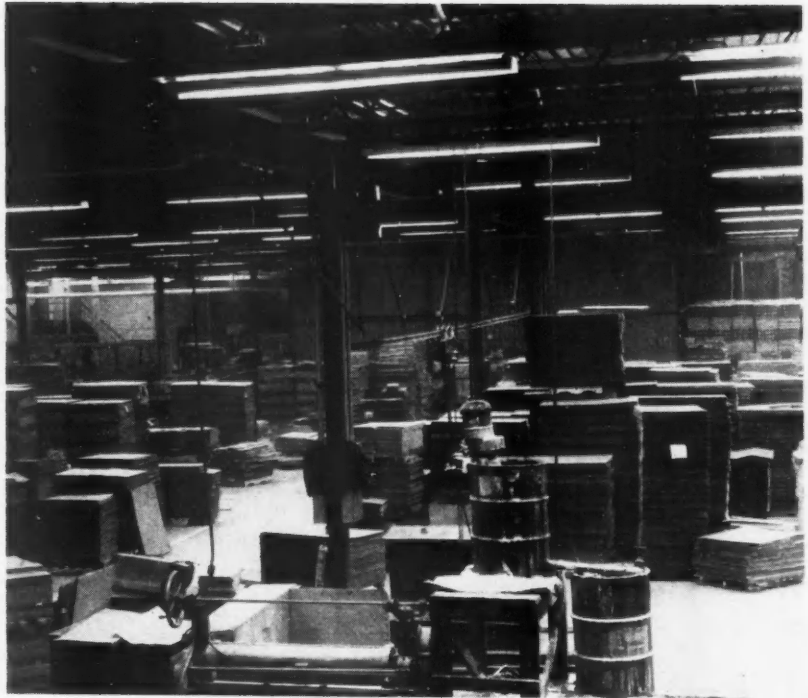
The demand for types and sizes of these stiffeners varies between incandescent, fluorescent, slimline, and Power Groove. Costs of fixtures plus installation together with current consumption were calculated. With Power Groove it was found that 166 two-lamp fixtures on 20-foot centers at a mounting height of 20 feet would produce 55 footcandles maintained.

The fixtures, individually fused, are fed from runs of 50-amp, four-pole plug-in busway, making it quite a flexible system.

Mr. Miller says, "It is amazing what a high level of even illumination can do to keep plant morale high. Of course, we can raise this lighting level at any time in the future by installing additional fixtures on our busway."

"We can even group them to achieve a high concentration over a particular area. I would hesitate to say how much faster we can make a changeover, but it certainly is accomplished much

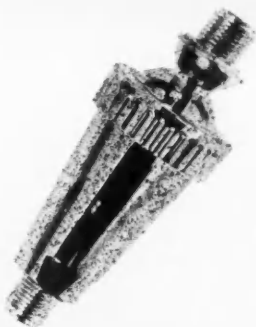
(Continued on page 68)



A uniform illumination level of 55 footcandles keeps plant morale high.



The factory utilizes six runs of 225-amp, three-pole, plug-in busway.



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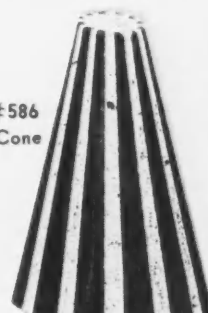
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Walls of light eliminate window

Passers-by can easily see merchandise inside a store during the day



Reflections from the street could be seen in this display window at the Burlingame drugstore before the improved installation was put in.



With the new installation, reflections have largely vanished, and the displays inside are visible. A lighted wall panel is seen at the left.

By Charles W. Macy, Pacific Gas and Electric Co., San Francisco, Calif.*

◆ The daylight hours are the most important hours to both the merchandiser and the potential buyer—but that is when window reflections are at their worst.

The sunnier and more pleasant the day—the brighter and more troublesome the reflections from the average display window.

Perhaps the most successful method for combating these reflections may not seem reasonable to everyone, but what cost is "reasonable" when it comes to providing a clear display window to the pedestrian traffic, particularly on a well frequented sidewalk where rents are high?

The method to be discussed could cost too much for a feed store on a side street. On the other hand, it could easily become an outstanding investment for a store on crowded Grant Ave., San Francisco, as it evidently has been for a drugstore on Burlingame Ave., in the commuter suburb of Burlingame, south of San Francisco.

Now that automobiles are normally finished in light and brightness-reflecting colors, they reflect light so well on a bright day that store windows often become walls of automotive reflections. Certainly, these beautiful cars appear bright and gay compared to their former dark finishes, but storekeeper and customer have a harder time getting together on a sale due to the lack of brightness control.

Most store owners agree that under normal conditions the display window is probably their

*Mr. Macy retired from PG&E early in 1961. He expects to continue activities in the lighting industry and his new plans will be announced soon.

reflections

as well as at night

best salesman, when properly handled. However, the window must tell the right story—and customers must be able to see through the glass to read it.

When a young Burlingame merchant bought a drugstore with a comparatively dark, cavern-like appearance, he immediately increased the general interior lighting. However, to Lawrence L. Plagmann, the new owner, the store still had an old fashioned "apothecary" atmosphere in its outward appearance.

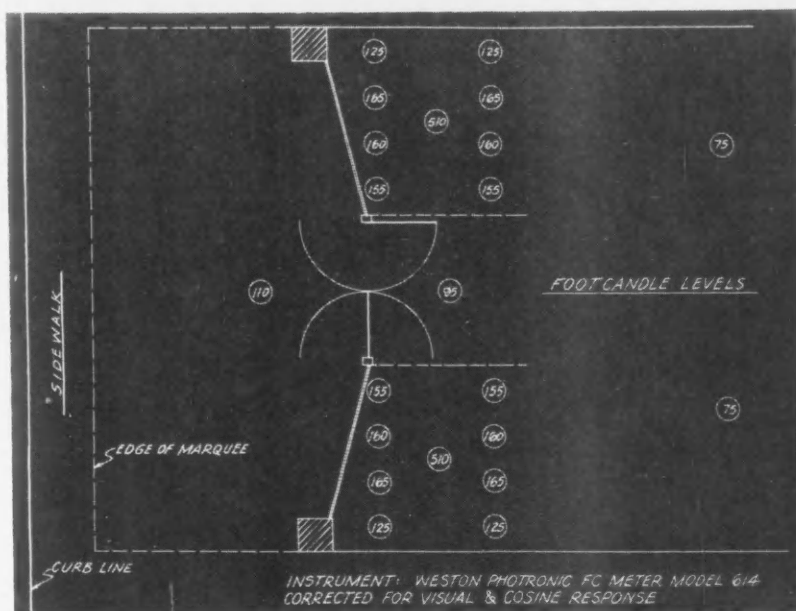
From time to time Mr. Plagmann and I would discuss the advantages of more and better designed lighting near the entrance to his store. Those talks might have been captioned, "See More—Sell More."

It is simple enough to talk light characteristics to the average and uninitiated "man on the street." He just nods his head—but evidently gets very little out of it. The next time you meet him, he

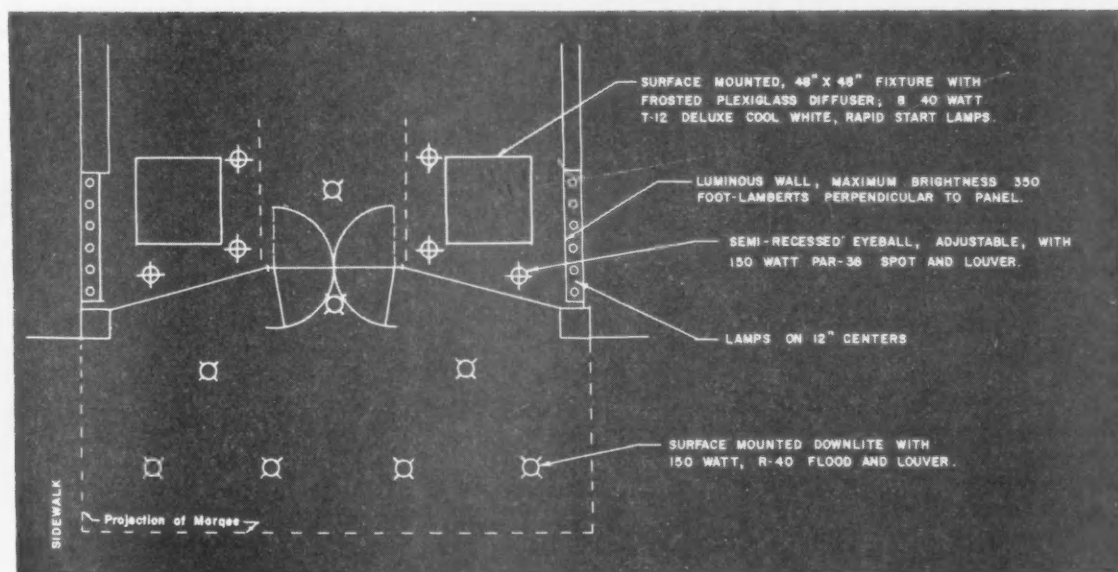
(Continued on page 66)



At night the remodeled drugstore has a distinctive and inviting look.



These readings show the high illumination levels present in the store.



A variety of fixtures, as shown in the plan, create a balance of vertical and horizontal illumination.



The lighting, which ranges up to 150 footcandles, can be moved easily because of the trolley duct.

Flexible lighting in electronics plant



Convenient trolley duct makes it easy to add or change lighting when plant needs vary. Raceway duct at front of column aids power changes.

By Albert S. Keshen, Lighting Field Editor, Newark, N.J.

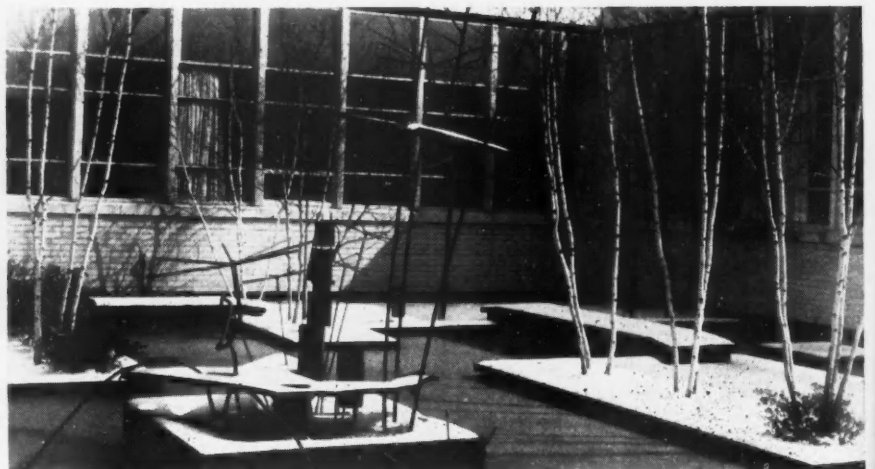
◆ Imaginative lighting is clearly evident in the construction of the plant of G-V Controls, Inc., engaged in research and development on precise electronic components at Livingston, N.J.

One of the major design goals of the architect-engineer, Frank Grad & Sons of Newark, N.J., was to provide a congenial, stimulating working environment for

the creative engineers and technicians and their staffs by allowing as much natural light as possible to enter the building, supplemented by artificial lighting where needed.

Natural lighting is abundant because of the square-shaped one-story perimeter design and an interior courtyard so that no desk or office is more than 20 feet from a view of the open sky.

(Continued on page 66)



This courtyard with its decorative treatment supplements interior lighting.

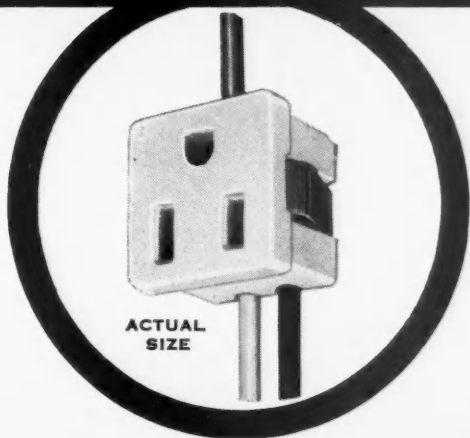
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Three golf balls are visible in the left foreground on the sixth green, lighted at 15-20 footcandles.

New resort's extensive facilities

And after completing the nine holes, golfers can enjoy the motel

By C. W. McCormick, Commercial Sales Manager, Connecticut Light and Power Co., Hartford, Conn.

◆ Between the city of Meriden and Connecticut's capitol city of Hartford runs the Berlin Turnpike, which at night is a

15-mile tunnel of light. Signs and floodlights along the strip beckon the motorists to eating places, motels, and drive-in movies.

Just below Hartford is a 200-acre complex whose lights force the darkness back even farther than the others. This is the Grant-

moor, and its heart is a nine-hole, par three golf course illuminated by 60 Widelite color-corrected, 1,000-watt mercury lamps.

There are also an 18-hole miniature golf course and a 40-tee driving range which are illuminated. Completing the setup are



Each of the 100 comfortable rooms features cove lighting by Keystone with a milk-white plastic bottom. Lightolier produced the reading lights mounted over the beds.



The lobby has desk wall fixtures by Lightolier, a hanging three-light cluster by Moe Light Div., bullets by Swivelier, ceiling fluorescents by Electro Lighting.



Twenty-six 1,000-watt Widelite and 25 400-watt Revere mercury lights brighten the driving range.

feature illuminated golf course

with its 100 well-lighted rooms, swimming pool, and dining areas

a restaurant and a 100-unit motel with an illuminated free-form swimming pool, lighted by Heywood Manufacturing Corp.

Architect for both the restaurant and motel was Philip G. di Corcia Associates, Manchester. Electrical work for the restaurant

and the golfing installations was done by Barstel Electric, Meriden; for the motel it was done by Elmwood Electric, Elmwood, Conn.

Grantmoor was developed by Newington Turnpike Associates, Inc., whose president is R. M.

"Bobby" Grant, well known Connecticut golfer and businessman. The restaurant was the first part of Grantmoor finished, and opened in December, 1959. Work has been started on an 18-hole championship golf course, which will
(Continued on page 53)



In the grill, bullet lights by Swivelier spotlight the mural of the par three pitch and putt course. The Grantmoor's eating facilities have a West Coast decor.



Dining room cove lighting is by Virden, with four-foot fixtures having dimmer units by Superior Electric. Pinhole spots are by Spear, incandescents by Lightolier.

Service emphasized by electrical

Extensive displays of fixtures enable contractors' customers to make



Many fixtures are displayed in the Camden Electrical Supply showroom.



By Phil Lance, Lighting Field Editor, Philadelphia, Pa.

◆ "A place where contractors and architects can bring all their electrical problems, even the customer for lighting fixtures."

In just such language does T. Curtis Flynn, president, Flynn's Camden Electrical Supply Co., 808 Haddonfield Rd., Cherry Hill, Delaware Township, N.J., describe the operations and activities of his organization.

"We have to offer every service, every convenience, and assistance to our customers that will make their work easier for them," he explains, "so that they rely upon us more completely for their every need. This is our main function as an electrical distributor and one that we feel has been the backbone of our growth and development."



A substantial amount of material is turned out by the firm for use in direct mail campaigns to keep contact with customers.

distributor

their own selections

This distributorship has quite a background for its policies, which dates back to 1901 when the firm was started by the current president's father, James J. Flynn, Sr.

When he passed away in 1948, a son, James J. Flynn, Jr., took over the management until 1959, when he resigned and T. Curtis Flynn took over. All through the years, service surpassing that initially expected by the trade was the keynote principle of activity.

"Any contractor or architect can come here and drop his entire electrical problem in our hands and have it fully resolved for him by the experts in our contracting department," says Mr. Flynn.

"We draw up the necessary layouts for him, prepare instructions, make supplies and fixture recom-



Increasing popularity caused an expansion of the outdoor fixture line.



All items are classified in order to speed up the delivery to customers.



High level illumination makes the supply firm's showroom stand out at night in its suburban location.

LIGHTING for MAY, 1961



Paneled walls and indirect lighting help to set off fixtures.



Regardless of size, all products are shipped with care.



Experienced countermen at wholesale department give fast service.

mendations, and even discuss the entire electrical program with his client whether it concerns a huge plant or one room in a home.

"By the same token, we have one of the largest and most modern showrooms in the Delaware Valley and their customers can come here to make their fixture selections. Our sales personnel can help if the contractor likes, and he handles the charges directly between himself and the customer. We bill the contractor. This eliminates any controversy concerning prices, discounts, etc."

Immediate delivery is another important service factor. Orders are delivered on a first-in—first-out basis, regardless of territory, with company trucks. More distant deliveries are made through public carriers.

The firm is divided into three major departments to facilitate the utmost in service and management control. These include the wholesale division, contracting, and showroom sales. Sales manager Rick Hessinger is in charge of the six salesmen who cover the central and southern New Jersey area, eastern Pennsylvania, and Delaware, covering a radius of roughly 100 miles around the wholesaler's location. James J. Flynn, III, heads the contracting department.

Weekly meetings are held, at which time manufacturers' representatives discuss products and problems with the salesmen, discussions are held between the salesmen, and other problems are completely aired.

Customers and prospective customers must be continually contacted with a variety of direct mail used independently or as stuffers with statements to keep up a permanent contact. This helps to keep this distributorship constantly before its customers and is the basis for repeat business volume.

All salesmen are on a commission and traveling expense basis, with earnings above the average for this industry. Mr. Flynn believes that a good salesman will not work any other way and that this is the greatest inducement to stimulated sales efforts. Otherwise, he is of little service to the

(Continued on page 66)

Lighting stairway exits

Dissenting opinion in court decision emphasizes the importance of keeping premises illuminated

By Arthur L. H. Street, Contributing Editor on Lighting and the Law, Minneapolis, Minn.

◆ The extent of obligation of church authorities to illuminate stairway exits used by visitors was considered by the New York Supreme Court, Appellate Division, First Department, in the case of *Kiernan v. Roman Catholic Church of St. John the Evangelist*, 205 New York Supplement, 2d, 706.

With one judge dissenting, the court based its decision on the following reasoning. A woman attending the evening church service knew before she left the church that the light on previous occasions had been used to illuminate the exterior stairway leading from the vestibule to the sidewalk. The stairway was not illuminated this time but, nevertheless, she did not use the available handrail in descending the stairs.

As between her and the church, the church was not careless merely because it failed on the one occasion to use extraordinary care in illuminating the exterior stairway, and she could not recover from the church for injuries she sustained in descending the stairway.

In dissenting, Judge Eager reasoned: "The plaintiff, a 76-year old woman, was injured as she descended the exterior stairs of defendant church on leaving same at about 9 p.m. after attending Lenten services.

"The jury could have found and undoubtedly did find that upon reaching the second step from the bottom, the plaintiff, because of dimness in lighting upon the steps, mistook this second step from the bottom for the last step and stepped off in that belief, and fell to the sidewalk, resulting in her injury.

"It appeared from the testimony that the lighting was poor, and, with the tread of the steps and the sidewalk of the same grayish stone color, it is reasonable to assume that the accident happened as claimed by plaintiff.

"Long prior to the accident, the defendant church had installed lights for the purpose of lighting the exterior steps, and it was the duty of the employees, when the doors of the church were opened for evening services, to turn on the lights. On the night of the accident, however, the particular light lighting the steps where plaintiff fell was not on.

"The evidence in this connection would support a finding that the particular light had not been turned on by the employee whose duty it was to turn it on or that, if it had been turned on, it was not working, which fact the employee of defendant knew or should have discovered and corrected in the exercise of reasonable care.

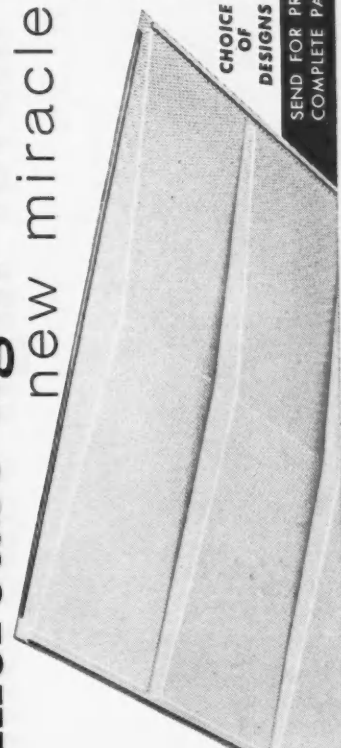
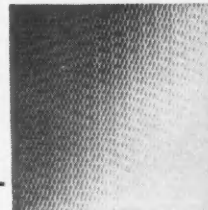
"Concededly, it is well settled that, at common law, there was no general duty on part of an owner to light common ways and exterior stairs, absent some defective condition, unusual hazard, or peculiar danger.

"Clearly, however, this is but a general rule, and it may yield to an exception under special circumstances which may dictate that the lighting of exterior stairs is required in the exercise of ordinary care.

"The plaintiff here had the status of an invitee to the premises of the defendant church, and, without question, the defendant owed to her the duty of exercising reasonable care to provide a reasonably safe means of ingress and egress from the premises."

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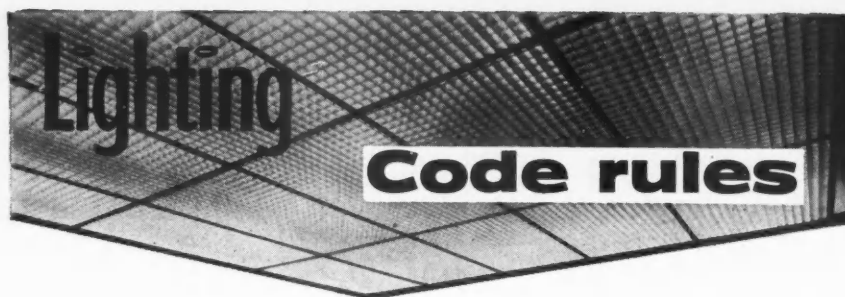
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Requirement for emergency power is insufficient for certain needs

By Walter R. Stone, Contributing Editor on Code Rules, Utica, N. Y.

◆ Emergency systems were discussed generally in the last issue of **LIGHTING**. In this issue, sources of supply will be further discussed in connection with emergency systems.

Section 700-7 permits the use of any type service which meets the provisions of Article 230 for the normal supply supplemented by a storage battery for the emergency supply.

Such a battery, if used, is required to have sufficient capacity to supply all of the emergency lighting and power at not less than 91 per cent of the normal system voltage for a period of at least one-half hour.

Although this requirement for supplying emergency lighting and power for a period of one-half hour is not further restricted by this section, there is no question about its inadequacy for certain types of emergency service, such as would be needed by a hospital where emergency lighting and power for iron lungs, medical refrigeration, emergency operating rooms, etc., could be needed for extended periods of time.

This is the intent of the second paragraph of Section 700-6 which states, "Consideration must be given to the type of service to be rendered, whether of short time duration, as for exit lights of a theater, or of long duration, as for supplying emergency power and lighting due to a long period of current failure from trouble either inside or outside the building, as in the case of a hospital."

A fine print note following Section 700-6 further states, "Assignment of degree of reliability of the recognized emergency supply system depends upon the careful evaluation of the variables at each particular installation."

Therefore, although there are several recognized emergency supply systems, the inspector is entitled, and may be expected, to weed out any system which in his considered judgment will not perform its intended function.

A battery supply with a maximum capacity capable of supplying 91 per cent of needed emergency lighting and power for a minimum period of one-half hour, therefore, probably would and should be rejected by the inspection authority if installed in a hospital or in any other location where the time element for its need could be definitely longer

than one-half hour or even where the time element would be indefinite.

Where the need could be shown to be within this period, however, such a battery system would be permitted, and in many cases such systems provide all the emergency supply needed from a source which is dependable. Of course, battery systems are available also which could supply circuits for longer periods than 30 minutes.

Whether of the acid or alkali type, batteries used for supplying emergency systems must be approved for emergency service. This includes, for the lead-acid type, a transparent jar and rugged construction.

Section 700-8 permits any type service meeting the provisions of Article 230 for normal service supplemented by a generator for emergency supply driven by a prime mover, such as a diesel engine. Such a generator is required to have sufficient capacity for supplying all emergency lighting and power circuits and to have provisions for automatic starting upon failure of the normal current supply.

Such generators are suitable, and are frequently used, for emergency services in hospitals and other locations where dependability is essential and where long-time emergency service needs are likely or may be assumed to be a possibility.

Section 700-9 permits two sep-

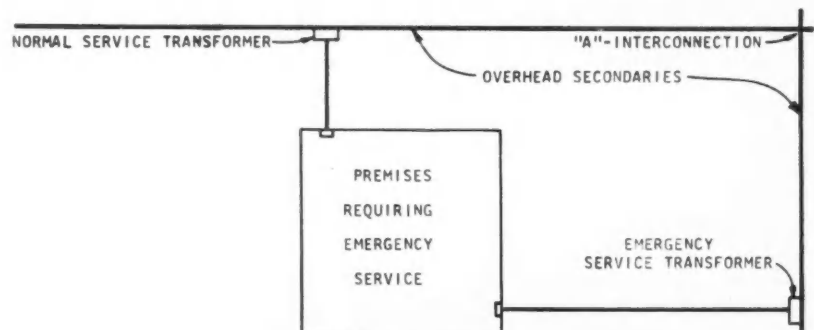


Fig. 1—The requirement that separate sources of supply for emergency service be "... widely separated electrically and physically ..." is not always well understood. In the sketch above the two services are well separated physically, but they would be more widely separated electrically in this case if the overhead secondaries on the two streets were completely separate and not interconnected at "A." The accompanying text explains the intent and application of Section 700-9.

arate services, each complying with the provisions for services in Article 230. In such cases, the two services are required to be "... widely separated electrically and physically to minimize possibility of simultaneous interruption of supply."

Intent not understood

The full intent of this section frequently is not understood, perhaps because it is vague to some extent. The term "widely separated" could not be pinned down with any degree of exactness, however, because of the many variables involved, such as the size of buildings, the availability of service, such as the location of buildings in relation to streets and alleys, etc.

But the intent of this rule is that they be as widely separated as practicable. This, however, is more easily understood in connection with a physical separation than with an electrical separation.

For instance, the term "widely separated electrically" could be taken to mean that two separate secondary systems would be needed so that a failure of one such system would leave the other available for emergency supply.

Most inspectors, however, accept supplies from two different transformers on the same secondary when such transformers are as widely separated, physically, as practicable. The two supply systems are then considered also to be as widely separated, electrically, as practicable. See Figure 1.

Section 700-10 lends credence to the latter practice by permitting the emergency supply connection to be made ahead of the disconnecting means of the normal supply. Such connection ahead of the main service is required to be "... sufficiently separated from main service to prevent simultaneous interruption of supply through an occurrence within the building or group of buildings served."

It can be seen readily that an outage in the secondary supplying either of the above two systems would leave the building in question without emergency service; and in the case of the system with the emergency connected on the

line side of the normal supply, an outage of the transformer would leave the premises without an emergency supply.

Yet, except for some of the most important buildings such as large hospitals, the connection ahead of the main service is the most commonly used source of supply for emergency systems, principally because it is the least expensive.

Section 700-11 requires that an emergency current supply from a standby power plant or auxiliary source comply with the capacity and availability requirements which are specified in Sections 700-5 and 700-6 for other sources of emergency supply.

Section 700-12 requires audible and visual signal devices to be provided where practicable to (1) give warning of trouble or impairment of the emergency or auxiliary source; (2) to indicate when the auxiliary source is carrying the load; and (3) to indicate when a battery charger is functioning.

Individual battery units as sources of emergency supply will be discussed in the next issue as well as switching control and overcurrent protection requirements for emergency systems.

Total lighting

(Continued from page 33)

good lighting and how it can transform a house into a home — inside and outside.

Other than fixtures, the use of which is fortunately increasing, most model homes are lighted by portable lamps, with architectural built-in lighting techniques coming in third.

One of the most difficult assignments in the lighting of exhibit homes is the choice of proper portable lamps and their correct placement. Not that there is a lack of suitable lamps, but all too often the builder's wife feels that she has a flair for interior decorating, or a local interior designer or store contracts to do the decorating, which always seems automatically to include the selection of lamps.

Admittedly, lamps must complement the interior, but "get 'em big and get 'em tall" seems to be

the only specification for table lamps by some interior designers today, with no thought given to the correlation of lamp height to table height.

In most instances, the solution rests with the local sponsoring utility. It should be clearly understood by the interior decorator or the decorating firm that one of the utility's qualified residential lighting consultants will cooperate in the selection and placement of all portable equipment.

Even though there may be some need for compromise between decorator and lighting consultant, such an arrangement will result in more appropriate portables being exhibited.

Golf course

(Continued from page 47)

complete the operation.

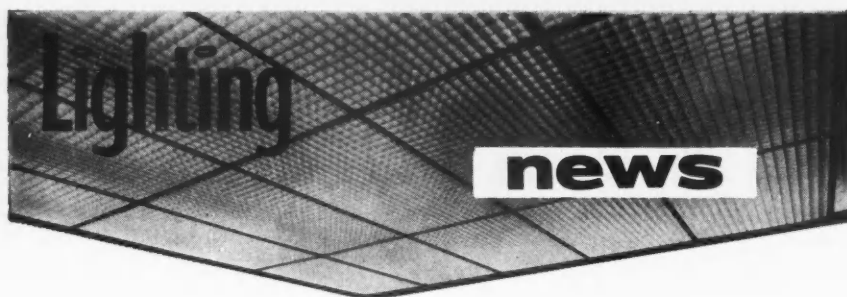
The restaurant building contains—in addition to the main dining area—a cocktail lounge, coffee shop, a grill, and banquet facilities. Cove lighting on a dimmer system is used throughout for controlling the atmosphere. Many other types of fixtures are used for decoration and accents. Emergency lighting was furnished by McPhilben.

The lighting in the motel, too, complements the modern decor of the comfortable rooms.

But, it is the golfing facilities of the Grantmoor, unique in Connecticut, and one of the few like it in the country, that are the big drawing card. The glareless lighting makes it possible to follow the flight of a golf ball easily from tee to green.

Families come from over a wide area to enjoy an evening of their particular favorite—pitch and putt, driving range, or miniature golf. Lighting gives them the chance for fun together that was previously restricted to weekends or daylight hours.

A variety of lighting fixtures were used throughout the installation: golf course lighting—Widelite, Revere; restaurant—Virden, Spear, Lightolier, Habitat, General, Swivilier, McPhilben, Superior dimmers; motel—Keystone, Lightolier, Phil-Mar, Moe, Swivilier, Electro Lighting; swimming pool—Heywood.



Landrith to administer power and light exhibit

APPOINTMENT OF Garland S. Landrith, Jr., as general manager of Power & Light Exhibit, Inc., which will administer the investor-owned electric utility industry's participation in the New York 1964-65 World's Fair, was revealed recently by Ernest R. Acker, president of P&LE and chairman of the board of Central Hudson Gas & Electric Corp.

In his new assignment, Mr. Landrith will supervise arrangements and activities in connection with the designing, erecting, operating, and maintaining of the industry's World's Fair exhibit.

Since joining Edison Electric Institute in 1957 as assistant to the assistant managing director, Mr. Landrith has worked on rate and legal matters and has served as purchasing agent for EEI.

A graduate of the United States Military Academy at West Point, N.Y., Mr. Landrith received his master of science degree in mining engineering from the Colorado School of Mines in 1951. Following graduation in 1953 from the Advanced Officer Course of the U.S. Army Engineering School, he served as an adviser to the Chinese Army in Formosa until 1955.

After graduation from the Command and General Staff College of Fort Leavenworth, Kansas, in 1956, Mr. Landrith taught engineering at West Point until he joined EEI.

M. M. Rosen renamed as president of AHLI

MAURICE M. ROSEN, president of Progress Manufacturing Company of Philadelphia, has been re-elected president of the American Home Lighting Institute.

The institute is an organization of home lighting fixture manufacturers, distributors, and component parts makers.

Elected vice-presidents were Jack Goldberg, president of Jay Lighting Manufacturing Co., Inc., and Wil-



Maurice M. Rosen

liam B. Epling of Prescolite Manufacturing Corp. Ted Cox, president of Ted Cox Associates, was re-elected managing director.

Elected to the board of governors

were Eugene Berman, Leader Lamp Manufacturing Co.; Edward H. R. Blitzer, Lightolier; Mr. Epling; Stanley A. Framburg, H. A. Framburg & Co.; Mr. Goldberg; Max Held, Halcolite Company, Inc.; Mr. Rosen; M. A. Shemer, Esty Manufacturing Co.; and John C. Virden, Jr., of John C. Virden Co.

Four-page advertisement sells lighting for PG&E

CALIFORNIA'S Pacific Gas and Electric Co., with headquarters in San Francisco, is launching its 1961 residential lighting promotion with a four-page black and white ad in the May issue of *Sunset* Magazine's central edition.

A review of the promotion program was presented to members of the North Coast Electrical Bureau at a luncheon at *Sunset*'s Menlo Park headquarters.

The ad is designed to offer strong consumer support to the model home phase of the electrical push being handled by the bureau and offers home buyers four pages of home lighting ideas for "indoors and out" and "for every mood and purpose."

The ad, according to Richard W.



Shown with the ad, which is appearing in the May issue of *Sunset*, are, from left to right, Larry Smith, *Sunset* sales representative; Mike Roeder, account executive for Batten, Barton, Durstine & Osborn, Inc., the agency responsible for the campaign; Richard W. Newell, assistant advertising manager of PG&E, and G. N. Radford, supervisor of commercial and industrial lighting for the utility. The ad will offer home buyers four pages of ideas.

Newell, assistant advertising manager of PG&E, will mark the highlight of the residential lighting program which includes two phases: PG&E advertising to carry the home lighting message to buyers, and the development of model homes by the bureau to display good lighting and modern lighting fixtures and equipment.

John C. Virden Company announces third division

JOHN C. VIRDEN, Jr., president of the John C. Virden Co., producer of nationally distributed lighting products, has announced the formation of a third new division—Interior Systems, Inc.

The new division will be concerned with the manufacture and marketing of complete interior systems products for commercial, industrial, and institutional construction. Interior Systems' operations will interrelate environmental functions for integrated interior systems.

Heading up Interior Systems is Paul G. La Vigne, general manager of the company's Western operations. Headquarters of the new division is at the firm's factory and Western offices located at 300 N. Baldwin Park Blvd., in Los Angeles.

The two existing divisions are Lighting Dynamics, engaged in the manufacture of commercial and industrial lighting fixtures, and Virden Lighting, producing lighting for the residential construction field.

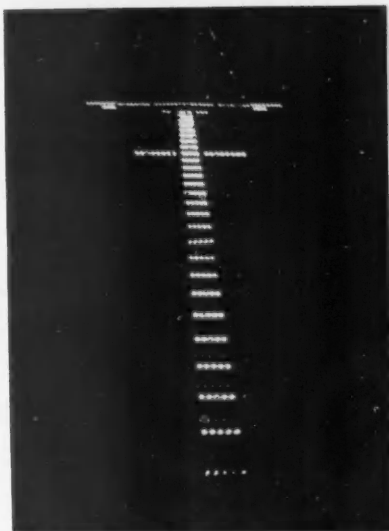
Oklahoma City airport gets new landing lights

WILL ROGERS FIELD in Oklahoma City is almost a fair weather facility, even when murky conditions are present, since recent completion of a new landing light system.

The system was installed by Blackburn Electric of Fort Worth, under supervision of Dale Kelley, acting airways technical district supervisor for the Federal Aviation Agency, at a cost of \$216,000.

The new approach lights, operating in conjunction with the airport's instrument landing system and instruments on planes, allow pilots to land at the field when the ceiling is as low as 200 feet and visibility cut to half a mile.

Previously landing was prohibited when the ceiling was 300 feet and below and the instrument landing system was in use, and when visibility was three-quarters of a mile or less.



This is what the pilot sees as he approaches Will Rogers Field in Oklahoma City. The lower horizontal bar is 1,000 feet from the runway.

The installation consists of 28 flashing lights set 100 feet apart and 236 variable intensity lights, set at the same distances in the shape of a cross. Each of the flashing lights, FAA official Dale Kelley said, lights up for about 1/4,000 of a second, twice each second, and has an effective output of 17,000 candlepower.

The instrument landing system guides pilots to about half a mile from the end of the runway. The new murk-penetrating lights guide the plane on in. Lights start 3,010 feet from the end of the runway, starting at a height of 24 feet and then being graduated down to ground level. Red lights are placed 110 and 210 feet from the runway end, with green threshold lights placed ten feet from the end of the runway.

A wider line of lights forms the horizontal bar of a cross at 1,000 feet from the runway. Flashers are operated by automatic sequence, and the system is operated by the field control tower.

IES publication presents sports lighting practice

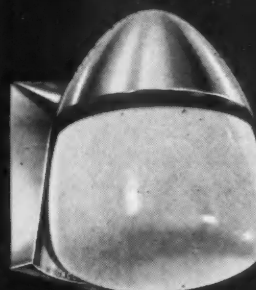
OF SPECIAL IMPORTANCE at this time of year is the new 48-page Current Recommended Practice for Sports Lighting just published by the Illuminating Engineering Society.

Sports events are more and more extending beyond daylight limitations, and this new publication provides a complete guide to the types

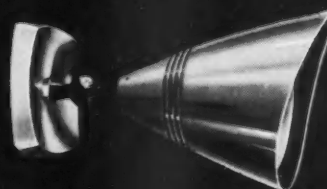
MORE BEAUTY IN OUTDOOR LIGHTING



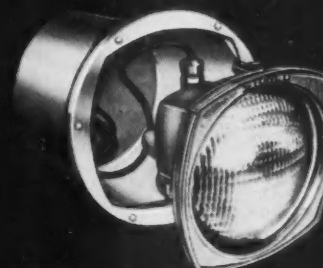
NEW . . . prismatic luminaire



NEW . . . opal series



NEW . . . bullet beauty



NEW . . . underwater lights

WRITE FOR CATALOG S-61

STONCO lighting

STONCO ELECTRIC PRODUCTS CO.
333 MONROE AVE., KENILWORTH, N.J.
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and amounts of lighting required in darkened hours.

The new Recommended Practice for Sports Lighting covers lighting for sports ranging from major professional baseball and football games to recreational and playground activities such as horseshoe pitching and croquet.

Introductory chapters discuss the general purpose and scope of lighting for sports and factors of good illumination for such areas. Lighting requirements from the standpoint of players, spectators, and commercial interests follow; then descriptions of lighting equipment and systems to meet these requirements.

Recommended layouts of equipment for lighting indoor and outdoor sports are included as well. There is a thorough coverage of the maintenance program involved in operating a sports lighting system efficiently.

As well as guiding professional lighting engineers and specialists, the new recommended practice will help many who are interested in correct sports lighting, including teams and participants and their management, municipal school and recreational authorities, colleges and universities, consulting engineers and designers, and construction and electrical contractors.

Copies may be obtained from the Publications Sales Office, Illuminating Engineering Society, 1860 Broadway, New York 23, N.Y.

Westinghouse to launch big campaign for bulbs

LED BY THE "Lamp Lighter," the company's new light bulb salesman, the Westinghouse Lamp Division will launch the most aggressive consumer light bulb marketing program in its history this year.

The "Lamp Lighter," a new caricature developed by the company, resembles a New Shape Eye Saving Westinghouse light bulb. It carries a lighted magic wand. The "Lamp Lighter" will be featured in the company's TV commercials, in newspaper and magazine ads, in trade journals, and on merchandisers and various point-of-sale material.

According to Charles E. Erb, marketing manager of the Westinghouse Lamp Div., a keystone of the division's program will be the concentrated use of network TV. This will include commercials on the new Westinghouse Playhouse starring Nanette Fabray and Wendell Corey. The program is carried on nearly 200 stations of the NBC network.

Also to be employed is a heavy schedule of TV spots in major markets across the nation. In both cases, the "Lamp Lighter" will be featured in the commercials.

A concentrated schedule of ads in the *Saturday Evening Post* and *Good Housekeeping* is another selling punch in the division's sales program, Mr. Erb revealed. The ads will be scheduled at the peak of the

two big light bulb selling seasons.

Another segment of the marketing program involves the use of spectacular new bulb displays and merchandisers, new product assortments, imaginative point-of-sale material, consumer literature, and labels. The "Lamp Lighter" theme will be used throughout.

In the household lamp market, Mr. Erb indicated that Westinghouse is completing development of a new dual purpose light bulb which will perform two important functions in the home. It is expected that the new bulb will be marketed nationally this spring.

The division will also introduce a major improvement in standard inside frost bulbs in keeping with the "compact" trend in the automotive industry.

Electro Lighting makes five new appointments

ELECTRO LIGHTING Corp., Chicago, has appointed Steward E. Robinson as vice-president in charge of Eastern sales.

Mr. Robinson will be in charge of sales in an area from and including Washington, D. C., north to Canada and from the Atlantic westward to New York and Pennsylvania.

He will be located at the firm's New York City office, 39 Cortland St.

In addition, four district sales managers have been appointed. They are Ernest C. Winfree, Jr., Birmingham, for Alabama; Bush-Springer and Associates, Columbus, Ohio, for southern Ohio, Indiana, and most of Kentucky; Robert E. Kelley, Cleveland, for northern Ohio; and Bill Horning Sales, Vancouver, Wash., for Washington, Oregon, and part of Montana.

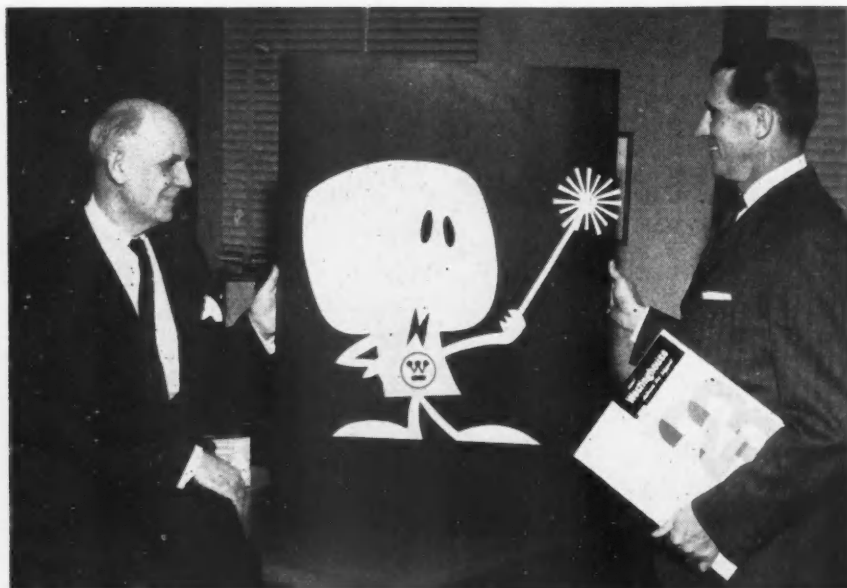
K. C. Dorland to head sales for Union Metal

THE UNION METAL Manufacturing Co., Canton, Ohio, has named Kenneth C. Dorland as general sales manager.

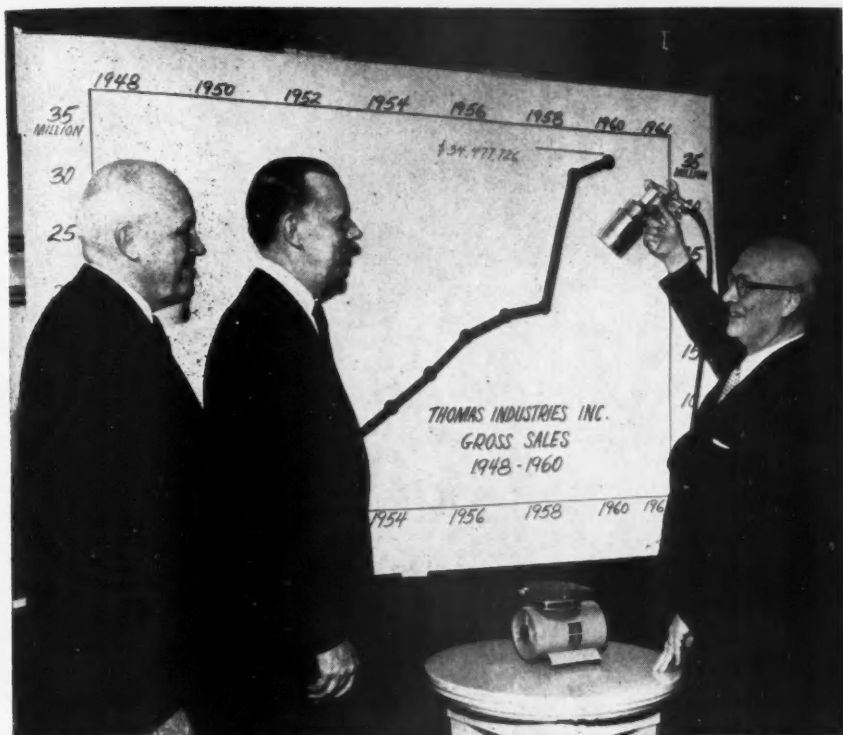
He succeeds the late Louis F. Heckmann, former vice-president in charge of sales, who died in January.

A native of Canton, Mr. Dorland joined Union Metal in 1925. In 1958 he was appointed manager of all outdoor lighting products.

Mr. Dorland is a member of the National Electrical Manufacturer's Association and a director of their Lighting Div.



Looking at the "Lamp Lighter," new light bulb salesman for Westinghouse, are two of the company's Lamp Division marketing officials. At the left is H. E. Plishker, Lamp Division merchandise manager, talking with Charles E. Erb, division marketing manager. The symbol will be used extensively.



Lee B. Thomas, president and chairman of Thomas Industries, Inc., demonstrates the firm's new portable paint sprayer to two of the directors, Ernest A. Eklund, left, attorney and chairman of the board of Uptown National Bank in Chicago, and Franklin J. Lunding, center, chairman of the board of Jewel Tea Co. Sales during 1960 were the highest in Thomas' history.

Thomas Industries' sales reach record high in '60

THOMAS INDUSTRIES, INC., Louisville, Ky., manufacturer of lighting fixtures and other products, recently reported that its sales for 1960 set a new high, topping the 1959 record. Earnings were the second highest in the company's 14-year history.

A sales increase of five per cent or more and an increase in earnings also are predicted for 1961, resulting from "our improved relative position in all areas of our business, rather than a general economic upturn," said Lee B. Thomas, president and chairman.

Sales for 1960 totaled \$34,477,726, up three per cent from sales of \$33,557,539 in 1959. Earnings for the year were \$1,122,810.

Higher labor and materials costs and "depressed prices for many products resulting from the most competitive conditions our company has ever known" produced lower earnings despite the sales increase, the president said. This was due to an 18 per cent reduction in housing starts and generally unsettled business conditions in 1960, he noted.

Despite these conditions, said Mr. Thomas, "We have been able to continue our sales growth which

we feel is vital to the future of our business."

He said the present excellent sales and earnings prospects are due largely to progressive steps taken in 1960.

The company expanded and integrated its manufacturing facilities, rounded out product lines, consolidated the sales forces of its residential lighting fixture division with the Benjamin commercial and industrial lighting fixture division, and brought out new models of its Sprayit electric paint sprayers and compressors and Wright power saws.

"Research and development continued to receive constant attention and expenditures were the highest for any year to date," Mr. Thomas said.

While the government is again taking measures to stimulate new housing starts, Mr. Thomas said, the business probably would not show the effects for some four months after. Historically, the residential lighting industry lags behind housing starts, he explained, and the results, therefore, might not even be apparent until 1962.

However, Mr. Thomas said interest in higher light levels and decorative lighting is at a peak.

Russell Viehman made vice-president of Guth

RUSSELL R. VIEHMAN has been elected vice-president of the Edwin F. Guth Co., St. Louis, manufacturers of lighting equipment. . .

Mr. Viehman formerly held the position of advertising manager.

He succeeds George Watts as vice-president, who retired on March 1 after 51 years of active service with Guth.

Mr. Viehman's successor as advertising manager is Kurt Kleindienst.

Jay Lighting promotes three sales personnel

PERRY GOLDBERG, executive director of Jay Lighting Manufacturing Co., Inc., of Brooklyn and New York, has announced three sales personnel promotions.

Martin Barnik, Jay's showroom sales manager for the past four years, has also been designated Coronet sales manager. Coronet is Jay's luxury line of chandeliers and sconces wrought primarily from cast architectural bronze.

Milton Thaler, sales-service manager for 12 years, functioning from Jay's Brooklyn manufacturing plant, has been appointed sales manager for the New York Metropolitan area. He will handle all company lines.

Wallace Spanier, New York Metropolitan area sales manager for Jay for over three years, has been assigned to cover eastern Pennsylvania, southern New Jersey, Delaware, Maryland, and Washington, D.C. He will operate out of Philadelphia, and will handle all Jay lines.

All sales personnel report to Jack Goldberg, president and general manager of Jay.

Lightcraft of California chooses Flaum for sales

IRWIN FLAUM has been named New York State sales representative for Lightcraft of California.

The announcement was recently made by Lightcraft of California executive Bernard Gottlieb.

The addition of Mr. Flaum to the national sales force is in line with the company's program of expansion, and is geared to the increasing demand for Lightcraft of California's creative lighting in the Eastern area.

Mr. Flaum comes to the firm with

a background of 20 years experience in the residential lighting and lamp field.

He may be contacted at 22-15-79th St., Jackson Heights 70, N. Y.

Elite Glass becomes E-Lite Company, Inc.

ELITE GLASS COMPANY has changed its name to E-Lite Company, Inc.

Reason for the name change is the diversification of products manufactured by the organization, including fixtures, parts, glassware, and accessories.

Keystone designates Tal as sales representative

THE TAL AGENCIES, Inc., have been appointed sales representatives for the Keystone Manufacturing Co., Warren, Mich., manufacturers of electrical wiring installation equipment.

Tal will be responsible for the sales and service of Keystone products in Washington, northern Idaho, and Alaska.

The firm maintains headquarters at 1041 6th Ave., S., Seattle 4, Wash.

T. D. Wakefield becomes president of Art Metal

T. D. WAKEFIELD, executive vice-president of the Wakefield Co., Vermilion, Ohio, has been elected to the additional office of president and general manager of Art Metal Company of Cleveland.

Other Wakefield officials who also have been named to Art Metal posts include D. A. Schisler as vice-president of marketing, and R. M. Brown as sales manager.



T. D. Wakefield looks at some products made by Wakefield and Art Metal Co., of Cleveland, Ohio.

COMING EVENTS

IES Inter-Mountain Regional Conference, Salt Lake City, Utah, May 1-2, 1961.

IES South Pacific Coast Regional Conference, Sacramento Inn, Sacramento, Calif., May 4-5, 1961.

IES Pacific Northwest Regional Conference, Harrison Hot Springs, Harrison, British Columbia, Can., May 8-9, 1961.

IES Canadian Regional Conference, Queen Elizabeth Hotel, Montreal, Can., May 15-16, 1961.

Edison Electric Institute, Street and Highway Lighting Committee, Corning, N.Y., May 24-25, 1961.

IES Northeastern Regional Conference, Berkeley Carteret Hotel, Asbury Park, N.J. June 8-9, 1961.

IES Great Lakes Regional Conference, Sheraton Gibson Hotel, Cincinnati, Ohio, June 19-20, 1961.

National Association of Lighting Maintenance Contractors, National Convention, Flamingo Hotel, Las Vegas, Nev., Aug. 21-23, 1961.

IES National Technical Conference, Chase Park Plaza Hotel, St. Louis, Mo., Sept. 24-29, 1961.

Western Building Industries Exposition, Great Western Exhibit Center, Los Angeles, Calif., Oct. 7-10, 1961.

AIEE Fall General Meeting, Statler-Hilton Hotel, Detroit, Mich., Oct. 15-20, 1961.

Eighth Industrial Electric Exposition, Penn - Sheraton Hotel, Pittsburgh, Pa., Nov. 7-9, 1961.

New appointments of Art Metal personnel include E. R. Kiernan as assistant general manager, L. I. Dvorak as production and plant engineer, A. W. Matteson as chief engineer, and G. J. Bolles as field service manager.

Halo Lighting Products announces appointments

HALO LIGHTING Products, Inc., manufacturer of recessed lighting units, has announced the following new appointments:

Ron McCarthy, 1340 Cambridge, Berkley, Mich.—district sales representative for Michigan.

Dan Alspach, 4201 W. Grand Ave., Chicago, Ill.—lighting engineer for Illinois.

J. W. Reynolds, 375 Andrew Ave., Salt Lake City 15, Utah—sales representative for Utah and Idaho.

The D. C. Muir Co., 531 Western Ave., Atlanta, Ga.—sales representative for Georgia.

Lyman Jensen, 10301 Wentworth, Minneapolis, Minn.—district sales representative for Minnesota.

Robert Jordan, 4202 S. 32nd St., Arlington, Va.—district sales representative for Maryland and Washington, D. C.

William Richardson, 3342 Taraval, San Francisco, Calif.—district sales representative for northern California.

Gerald P. Jones, 1044 Richmond, Los Angeles, Calif.—sales engineer for southern California.

Erickson to direct sales for Radiant Lamp Corp.

DAVID A. FOXMAN, president of Radiant Lamp Corp., has announced the appointment of Harold A. Erickson of 324 Pennington Ave., Passaic, N.J., as sales manager.

The company manufactures incandescent lamps of up to 10,000 watts for use in projection equipment and motion picture studio lighting, as well as mercury and incandescent lamps for lighting factories, airports, highways, sports fields, and other industrial applications.

Royal appoints Hilton as marketing director

JAMES H. HILTON has been appointed to the newly created position of director of marketing at Royal Electric Manufacturing Co., Chicago.

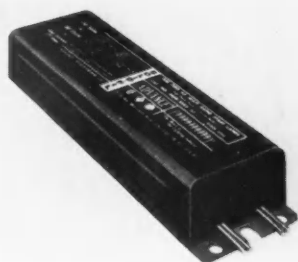


Artolier modern lanterns

Artolier Corp., 141 Lanza Ave., Garfield, N. J., is introducing three new models with clean modern lines into its group of outdoor and indoor lanterns.

Featuring hand blown glass, the lamps are suitable for use in a wide variety of areas.

The center cylinder is frosted glass, with a glass door bottom. Fin-



most ordinary polyesters and other types of solid fill materials in that it retains a pliable consistency and will not become brittle with age or heat, permitting retention of its excellent thermal and sound deadening characteristics.

Accelerated heat tests proved conclusively no deterioration or drippage of the "Solid-Fil" development.

Write No. P-502 on coupon, p. 17.

Berger lamp swivel

Berger Machine Products, Inc., 74-16 Grand Ave., Maspeth, Queens, N.Y., has just marketed a new precision solid brass body UL listed swivel for the lamp and lighting industry.

It is solid polished brass with a chip-proof lacquer for lasting performance. The new swivel has a simplified construction design with less parts to wear out. Its positive stop action prevents short circuits and costly wire breakage.

Special consideration was given to roomier wireway to save assembly



ishes available include striped black and brass, weathered brass, striped white and brass, black with brass trim, or white with brass trim.

The lanterns are offered in diameters of 7¼ and 11½ inches, with fixture lengths varying from 12 to 17½ inches.

Write No. P-501 on coupon, p. 17.

Advance solid fill ballast

Advance Transformer Co., 2950 N. Western Ave., Chicago 18, Ill., is now offering a new fluorescent lamp ballast design which incorporates unitized ballast construction.

The ballast housing, core and coil, capacitor, and the new "Solid-Fil" development combine to offer drip-free unitized construction.

The basis of the improved "Solid-Fil" material used in the new fluorescent lamp ballast is polyester created as the result of combining a glycol with an anhydride acid utilizing a peroxide to initiate a cross-linking or thermo-setting of the resin.

This development differs from

WHEN PRICE is an object !

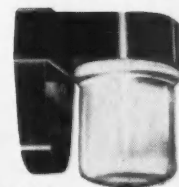
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NON-CORROSIVE !
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PRICED !**

LIGHTING FIXTURES



#170



#178



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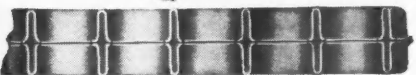
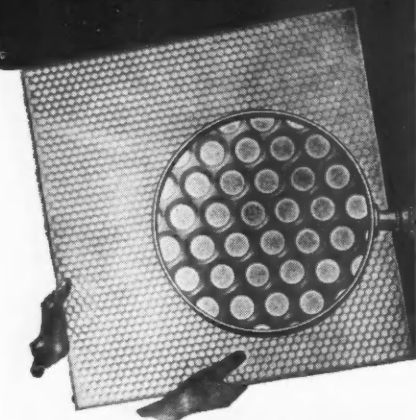
#190



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" " 2' x 4' x 1/2"

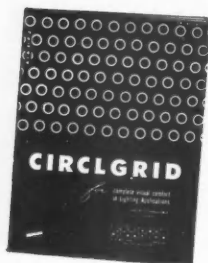
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More than a Luminous Louver

- It's **UL** listed-20 (non-combustible)
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- Outstanding **BRIGHTNESS CONTROL**

As lighting specialists we developed Circlgrid to meet building lighting codes—it will not support combustion and is safely applied under sprinklers. Circlgrid is thermo-formed from two sheets of vinyl and fused electronically to a center vinyl membrane for structural strength and rigidity—yet weighs only 3 1/2 oz./sq. ft. Many leading lighting equipment manufacturers are licensed to sell and distribute Circlgrid in USA, Canada and other countries.

The moment you see and inspect a Circlgrid sample you'll think of many applications in modern lighting.



Write for sample and technical data.



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time and wire fraying. Special dual-purpose spanner wrenches are furnished free so that the swivel may be assembled without plier scratches that mar the finish.

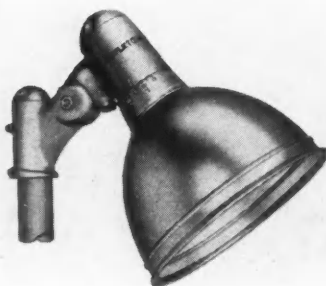
Small indentations on the swivel body permit the wrench to tighten both ends for extra secure assembly.

Write No. P-503 on coupon, p. 17.

Appleton floodlights

Architects and engineers concerned with controlled floodlighting for small areas and doing the job at relatively low cost will welcome the new 3020 series of mercury vapor reflector lamp floodlights, manufactured by Appleton Electric Co., 1701 Wellington Ave., Chicago 13, Ill.

The floodlight has been especially designed for gasoline service sta-



tions, parking lots, outside storage areas, and other open locations. They fully utilize all the light available from the lamp instead of permitting a portion of the light to escape. This results in greater lighting efficiency in target areas.

Appleton 3020 series floodlights use 400-watt R52 hard glass color-improved and white mercury vapor lamps and are fully adjustable for horizontal and vertical aiming.

Write No. P-504 on coupon, p. 17.

Neo-Ray wood-beam ceilings

Neo-Ray Products, Inc., 315 E. 22nd St., New York 10, N. Y., announces the beauty of wood brought to light in a new walnut wood-beam ceiling, modular suspension system.

Wood-beam ceilings combine the quiet beauty and warmth of wood with a great variety of decorative luminous and louvered ceiling panels. They are available as a total



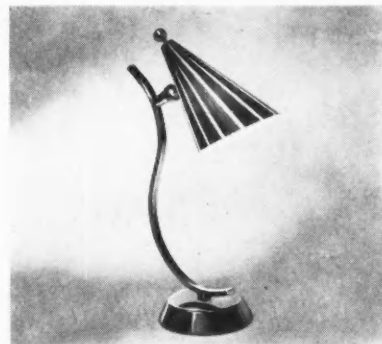
luminous ceiling or interspersed with acoustic tile and fluorescent or incandescent fixtures.

Write No. P-505 on coupon, p. 17.

Lightcraft 'Wood-Slat' series

The unique "Wood-Slat" series is now being introduced by Lightcraft of California, 1600 W. Slauson Ave., Los Angeles 47, Calif.

Capturing the rich tones of walnut wood and polished brass, the design of this series is especially



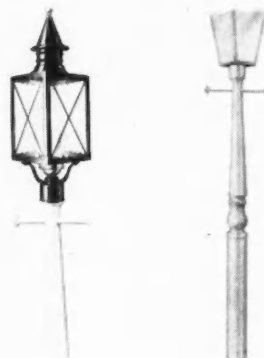
suited to diffused, non-glare lighting. This design utilizes the newly developed production methods by which walnut-grain wood-slats are molded into fiberglass in combination with custom-made rectangular brass tubing.

This style is produced in a complete series of lamps and fixtures adaptable to all lighting areas.

Write No. P-506 on coupon, p. 17.

Progress colonial lamps

Progress Manufacturing Co., Inc., Castor Avenue and Tulip St., Philadelphia 34, Pa., has two new colonial post lanterns and a lantern post.



The post is an authentic reproduction of a colonial turned-wood post, fashioned of tubular solid aluminum. This unit telescopes from a maximum height of eight feet to as little as six feet, and has a lad-

der rest. The collar has a three-inch opening. The quaintly turned center section of the column lends distinctive character and charm to the design.

Progress has also produced a lantern made of foundry cast aluminum, finished in a rich, glossy satin black with bright brass trim, and side panels of clear glass. Its 100-watt bulb is concealed by an authentic frosted chimney. The unit is 17 inches high.

Another new lantern is made of aluminum and is based on a famous New England design of pre-Revolutionary days. It is 23 inches high and is finished in fine satin black with brass trim. The lantern has glass panels with a screened design and a frosted glass chimney. A 100-watt bulb is used.

Write No. P-507 on coupon, p. 17.

G-E's new fluorescent colors

Expanded usefulness of the "Premium 3" 40-watt fluorescent lamp as a result of the introduction of three additional shades of white has been announced by General Electric Co., 1 River Rd., Schenectady 5, N.Y.

New colors are deluxe cool white, deluxe warm white, and daylight. They supplement three previously announced colors—cool white, warm white, and white—thus greatly increasing the number and type of applications to which the Premium 3 may be put in commerce, industry, the home, and elsewhere.

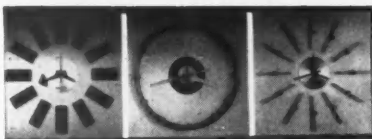
In any of the six available "whites," the Premium 3 provides greater light output and lower cost of light than equivalent colors of other 40-watt lamps. It can be used in either "preheat" or "rapid-start" circuits.

Write No. P-508 on coupon, p. 17.

Howard Miller clocks

Clocks designed to complete the visual projection of a motif or personality for a room or building are newly introduced by the Howard Miller Clock Co., Zeeland, Mich.

The new line of design stems from the idea that since clocks are prob-



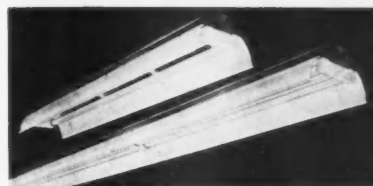
ably looked at more often than any other single inanimate object, they could qualify as key figures in the establishment of architectural personality.

Designed by George Nelson, models 6774, 6770, and 6772 are three of the line that emphasizes form, texture, and finishes in a building.

Write No. P-509 on coupon, p. 17.

Mitchell industrial fixtures

A new line of Dynalite industrial fixtures from the Mitchell Lighting Div., Compco Corp., 1800 N. Spaulding Ave., Chicago 47, Ill., has been designed to meet the need for high



intensity illumination in industrial plants.

The fixtures are available with 25 per cent upward lighting compo-

Wanted: Manuscripts

The editors of *Lighting* will welcome contributions from the field for publication. Electrical contractors, lighting consultants, electric utility lighting engineers, and others closely associated with the lighting industry are invited to submit articles, photographs, and drawings relating to important lighting installations and developments anywhere in the United States. All articles will be given careful consideration and payment will be made promptly for all material accepted for publication. Write for your copy of *Lighting's* "Author's Guide." Address all communications to

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ment, ten per cent upward component, and completely enclosed white top reflectors. The upward component fixtures have the lamps located directly below the open apertures to get the maximum benefit from the "chimney effect."

With this effect a constant flow of air through the apertures reduces the operating temperature of the fixture, increasing lamp and ballast life. In addition, the air flow keeps reflectors cleaner, reducing maintenance and improving the over-all light output.

Dynalite industrials are available for two or three lamps in four- or eight-foot lengths. Ballasts can be supplied for rapid-start, pre-heat, Power Groove, VHO, and high output lamps.

Write No. P-510 on coupon, p. 17.

Leviton dimming control

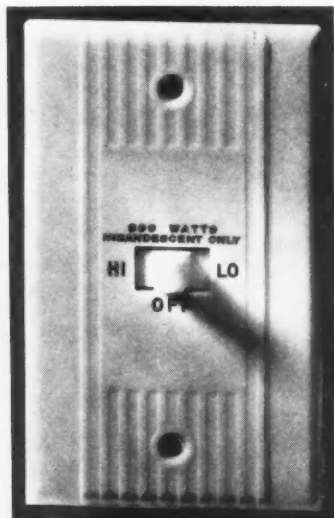
Leviton Manufacturing Co., Inc., 236 Greenpoint Ave., Brooklyn 22, N. Y., has announced the new Hi-Lo dimming control, No. 655.

This new two-stage dimming switch fits into a standard gem box. It will directly replace any standard single pole light switch in seconds, using the same two wires to connect.

The device is for use with permanently installed incandescent fixtures up to 300 watts and offers two levels of illumination using ordinary single filament lamp bulbs. The device is UL listed, and is rated at 300 watts, 120 volts, a-c.

The control is designed with an integral modern wall plate and a toggle that operates from side-to-side. This side-to-side action eliminates the tendency to skip the off position as is common with many up-down toggle switches.

The control works on an electron-



ic principle. Its components and simplified design make possible cooler operation and longer life than almost any similar device on the market. In the low position, current output is 50 per cent that of the high position, and only 30 per cent of the lumen output of lamps.

No extra current is consumed and no heat is produced by the control mechanism.

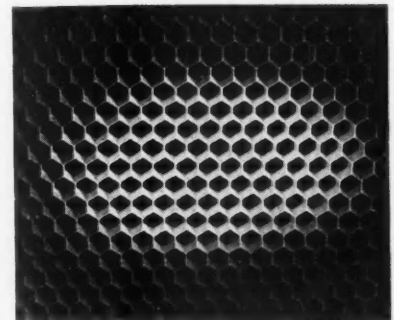
Write No. P-511 on coupon, p. 17.

Illuminated ceiling paneling

Fannon Products Div., Hupp Corp., 3000 E. Woodbridge, Detroit 7, Mich., in conjunction with McCord Corp., has introduced a new steel illuminated ceiling panel of excellent characteristics called Metalcel.

The panel is hexagonal in design and offers great strength with a crushing load of 1,450 pounds per square inch without significant deflection.

Metalcel is ideal for decorative and structural panels for a great



many varied applications from illuminated ceiling panels to floor panels in use with laminate materials. This panel is made of one continuous piece of steel and is copper brazed in a reducing atmosphere at 2,050 degrees F.

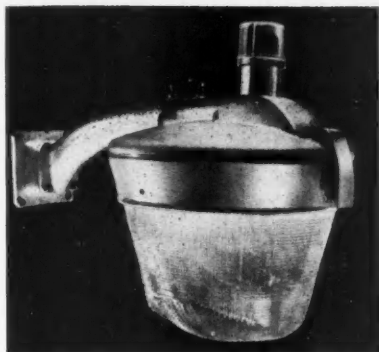
Metalcel has an excellent light transfer rating and is thus ideal for special commercial installations where maintenance is a factor.

Write No. P-512 on coupon, p. 17.

Holophane outdoor luminaire

Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y., has announced a new outdoor luminaire that turns itself on at night and off in the daytime.

Any standard NEMA photoelectric cell can be used with the new luminaire to turn it on when the sun goes down, off when it comes up. The new unit is for parking lots, shopping centers, ramps, private roadways, outdoor work places,



lamps can be replaced from the ground with a long handled bulb-changer, which is also used to open and close the luminaire.

Write No. P-513 on coupon, p. 17.

Mitchell ceramic fixtures

Mitchell Lighting Div., Compco Corp., 1800 N. Spaulding Ave., Chicago 47, Ill., is manufacturing contemporary ceramic fixtures which have been designed to meet the needs of the architect for designs to be used in modern interiors.

The ceramic bowls are of modern design with semi-gloss colors fired on for permanence. Random apertures create a sparkling effect, adding to the styling of the ceramic forms.



They are available in widths from 4½ to eight inches and lengths from seven to 19½ inches.

Standard colors are white, blue, bright orange, and turquoise. The ceramic bowls can be suspended singly or in clusters of three to five.

Most models are for use with 100-watt incandescent lamps. Commercial applications include offices, reception rooms, lounges, motels, restaurants, entrance halls, and corridors.

Write No. P-514 on coupon, p. 17.

Recarr magnetic base lamps

Recarr, Inc., 126 N. Clinton St., Chicago 6, Ill., announces the introduction of their new line of magnetic based lamps.

This line offers a solution to the problems of rigid positioning of lamps for permanent or temporary use. The units are designed primarily for utilization in the machine tool field where problems of adequate work area lighting are acute. However, any problem area of positioning light provides an ideal application for the lamps.

The lamps are available in two styles—the Arealite, which offers a

and other areas where automatic operation is desired..

The basic design uses an Endural glass bowl refractor with optical prisms on inside and outside surfaces. Shapes and location of the prisms are designed to assure uniform illumination over a broad area and to avoid glare.

Fixture parts are made of aluminum and stainless steel to resist corrosion and the over-all unit is designed in a contemporary style and engineered for use with incandescent or mercury vapor lamps.

The new luminaire is suitable for mounting on poles or walls with standard brackets. Burned-out

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LIGHTING PRODUCTS DIVISION KCS—MILWAUKEE

606 E. Clybourn St., Milwaukee 2, Wis.

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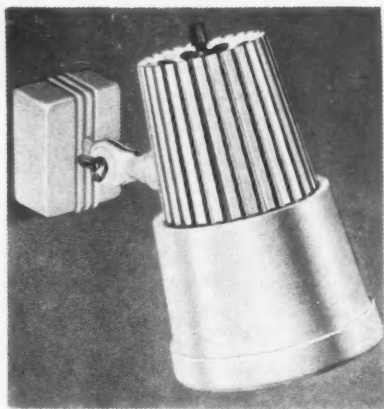
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state



wide area coverage of illumination, and the Magnaspot, which provides a concentrated light in a localized area.

All Recarr lamps are custom molded of high impact plastic and are engineered to provide a "cool to the touch" exterior. They can be provided with either a tubular or flexible extension arm.

Write No. P-515 on coupon, p. 17.

French lighting glassware

A new line of quality ruby glass lamp bases and lighting glassware has been announced by Verreries de Vianne, at the showrooms of Verfrance, Inc., 1133 Broadway, New York, N. Y.

The line features hand-cut and hand-decorated ruby glass for period rooms.

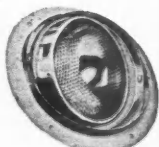
Verreries de Vianne is a well-known French lighting glass factory.

Write No. P-516 on coupon, p. 17.

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USE **ATI**
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RINGS for:

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VERSATILITY AND
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QUALITY FEATURES
LONG LIFE
CONSTRUCTION



GIMBAL RING* for
PAR 38, 46, 56 and
the 64 side prong
lamps

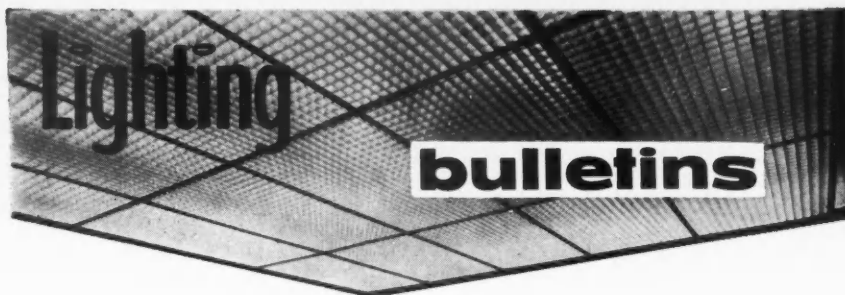
GIMBAL RING* for
R 30, R 40 and PAR
38 screw-base
lamps



*Cadmium plate, brushed chrome effect. Use as is or paint over.

Write or call for details

ATI **ALEXANDER-TAGG INDUSTRIES, INC.**
HATBORO, PENNSYLVANIA
OSBORNE 5-7200



The colorfully illustrated "Fabulous Textured Glass" brochure now offered by Puritan Lighting Fixture Co., 21-25 Boerum St., Brooklyn, N.Y., shows the completely new line of residential lighting fixtures introduced by Puritan to celebrate their 36th anniversary as a fixture manufacturer. The new anniversary line is described and illustrated in detail in the new catalog.

Write No. B-517 on coupon, p. 17.

A four-page brochure from Duro-Lite Lamps, Inc., 2321 Hudson Blvd., North Bergen, N. J., describes the company's new line of long-life Fluorescent decorative bulbs that feature a gas-like flame. Torch-shape bulbs described are available for both candelabra and medium base. Crown shaped bulbs with enclosed flame effect are also covered for indoor or outdoor uses.

Write No. B-518 on coupon, p. 17.

Rotuba Extruders, Inc., 437 88th St., Brooklyn 9, N.Y., has published an oversized (22 by 28½ inch) double-sheeted, pamphlet-like brochure, depicting almost 200 of their custom-designed and standard rigid die shape extrusions, available as light-controlling media in either polystyrene or acrylic plastic for the lighting industry.

Folded down to convenient letterhead size, these giant sheets include three evenly spaced holes on each sheet, so that folded or unfolded, they may be inserted into a designer's or purchasing-agent's loose-leaf notebook. However, it is recommended that the sheets be pasted spread out to their full size on the wall or on drawing boards. Printed in blue and white, the cross sectional die-shapes stand out in clear, bold outlines of white against the blue background. These new cross sectional shapes and stock dies are drawn in actual size, so that designers can superimpose any cross sectional piece of lighting channel directly upon them to see if they conform to dimension.

Write No. B-519 on coupon, p. 17.

A recent catalog features the Delcords, a new series of fixtures from Del-Val Manufacturing Co., 519 W. Huntingdon St., Philadelphia 33, Pa. The catalog contains many fixtures for interior and exterior home use.

Write No. B-520 on coupon, p. 17.

Litecraft Manufacturing Corp., 100 Dayton Ave., Passaic, N. J., has published a new four-page brochure which describes the Decathlon series of fix-

tures for school and office use. It contains specifications, candlepower distribution curves, coefficients of utilization, dimensions, and sketches of hanger arrangements.

Write No. B-521 on coupon, p. 17.

"New Light, More Light," a booklet describing a new line of high efficiency fluorescent lamps, has been released by Westinghouse Electric Corp., 1216 58th St., Cleveland 1, Ohio. The new lamps provide up to 36 per cent more light at no extra cost. The booklet gives complete details about the new line.

Write No. B-522 on coupon, p. 17.

Four-page publication No. GEA-6912 lists features and advantages of the new Bonus Line fluorescent lamp ballasts from General Electric Co., 1 River Rd., Schenectady 5, N. Y. The bulletin describes how new non-resetting thermal protector and improved capacitor are incorporated in the ballasts to eliminate hazards to people and property and eliminate need for individual ballast fusing. Tables of ballast ratings, data, and dimensions for rapid- and instant start ballasts are also included.

Write No. B-523 on coupon, p. 17.

A variety of economical wiring devices especially developed for the low cost residential market is pictured and fully described in a new eight-page, two-color catalog (C-101) now being offered by the Bryant Electric Co., Box D, Barnum Station, Bridgeport 2, Conn. Including switches, outlets, receptacle covers, wall plates, and lampholders, the catalog gives package weights and price per 100 on all items in this "Beco" line. Descriptions of each unit list colors available as well as other special features. Photographs illustrate the devices, and the catalog is punched for easy insertion in loose-leaf binders.

Write No. B-524 on coupon, p. 17.

Jay Lighting Manufacturing Co., Inc., 5 E. 35th St., New York, N.Y., has just completed two catalog supplements numbered 61A and 61B. Each illustrates and describes different groups of incandescent lighting fixture originals for home, commercial, and industrial use. All styles listed in these two supplements are in stock or available for delivery on short notice.

Write No. B-525 on coupon, p. 17.

Bulletin 6175C, a 16-page revised edition from General Electric Co., 1 River Rd., Schenectady 5, N. Y., features a

comprehensive outline of the essentials of efficient economical floodlighting. The bulletin describes floodlight classifications and general principles of floodlighting applications, telling how to calculate light levels in floodlighting both vertical and horizontal surfaces. Sample problems and solutions are included, as well as recommended foot-candle levels for various applications and photometric data for floodlights equipped with filament and mercury lamps.

Write No. B-526 on coupon, pg. 17.

The Intenso Econoflood line of commercial and industrial floodlights is covered in bulletin EFL-960, recently published by Appleton Electric Co., 1701 Wellington Ave., Chicago 13, Ill. Photographs, diagrams, and charts are contained in the booklet, including a page of photometric data illustrating the illumination obtained from fixtures at various distances.

Write No. B-527 on coupon, pg. 17.

A new illustrated handbook of recessed fluorescent equipment is now available from Globe Lighting Products, Inc., 1710 Flushing Avenue, Brooklyn, N.Y. Its 44 pages feature modular troffer units with frameless plastic lenses and a wide variety of other shieldings. All exposed hardware and spring catches have been eliminated. This se-

ries offers a wide variety of troffer sizes, complete with illustrations and data for all popular ceiling installations.

Write No. B-528 on coupon, pg. 17.

Bulletin 6435C, a four-page, revised bulletin from General Electric Co., 1 River Rd., Schenectady 5, N. Y., is now expanded to include photometric data on the G-E L-69A floodlight with 1,500-watt filament lamps and 400-, 700-, and 1,000-watt mercury vapor lamps. The bulletin documents applications and product features, includes photographs illustrating maintenance and servicing procedures.

Write No. B-529 on coupon, pg. 17.

Specification listings for explosion-proof and dust-tight lighting fixtures are contained in bulletin 2000, available from Appleton Electric Co., 1701 Wellington Ave., Chicago 13, Ill. Incandescent, mercury-vapor, and fluorescent lighting fixture parts and accessories are listed and diagramed.

Write No. B-530 on coupon, pg. 17.

Because demand has exceeded the supply for bulletin 5-A, published by Appleton Electric Co., 1701 Wellington Ave., Chicago 13, Ill., on their V-51 series convertible vaportight lighting fixtures, the company is reissuing this 20-page bulletin. Detailed description and

dimensional data on all parts and accessories, plus cut-away views of the exclusive construction are included.

Write No. B-531 on coupon, pg. 17.

Aluminum lighting fixtures made by Appleton Electric Co., 1701 Wellington Ave., Chicago 13, Ill., are covered in a catalog listing in bulletin AL-60, from the company. Included are form 85 "copper free" aluminum Unilets and their accessories, "FS" single and two-gang Unilets and covers, "V-51" lighting fixtures, and "JB" junction Unilets.

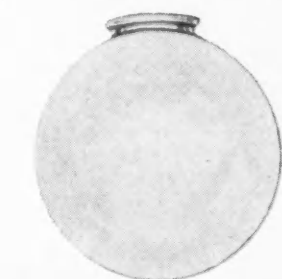
Write No. B-532 on coupon, pg. 17.

A brochure from Garco Lighting, 2475 Elston Ave., Chicago 47, Ill., describes guaranteed labor savings with 12-foot Speed-Line fixtures for schools and offices. Garco offers a written guarantee that fixtures described can be installed at rate not exceeding 1½ man-hours per 24 feet of fixture.

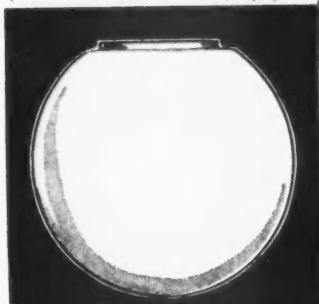
Write No. B-533 on coupon, pg. 17.

Latest information on National Electrical Code requirements most likely to affect the installation and operation of portable electric tools and equipment is available in the revised edition of "Grounding Facts," an eight-page illustrated booklet published by the Arrow-Hart & Hegeman Electric Co., 103 Hawthorn St., Hartford 6, Conn. De-

BLOWN OPAL GLASS COMMERCIAL UNITS



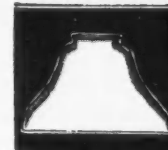
OPAL BALL			(WITH FITTER NECK)	
Cata. No.	Ball Size	Fitter	Ctn. Pcs.	Wt. Lbs.
4500	5"	3 1/4"	12	10
4501	6"	3 1/4"	12	12
4502	7"	3 1/4"	24	42
4504	8"	4"	12	20
4506	10"	4"	12	27
4507	10"	6"	12	27
4508	12"	4"	4	17
4509	12"	6"	4	17
4510	14"	6"	4	21
4511	14"	7"	4	21
4512	14"	8"	4	21
4513	16"	6"	2	28
4514	16"	8"	2	28



NECKLESS OPAL BALL			
Cata. No.	Ball Size	Opening	Ctn. Pcs.
4516	6"	4"	36
4518	8"	4"	12
4520	10"	4"	12
4521	12"	5 1/4"	4
4522	14"	5 1/4"	4
4523	16"	5 1/4"	2



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Packed 24 Wt. 18 lbs.

OPAL		UNIT	
Cata. No.	Diam.	Fitter	Ctn. Pcs.
4526	7 1/2"	4"	24
4528	9"	4"	12
4529	10"	4"	12
4530	10"	6"	12
4531	12"	4"	12
4532	12"	6"	12
4533	14"	6"	4
4534	16"	6"	4
4535	18"	6"	2

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signed to benefit those who specify, install, use, and inspect electrical appliances and equipment, the booklet interprets and clarifies revised Code requirements and provides up-to-date information on new types of grounding devices developed especially to satisfy the new requirements for safety.

Write No. B-534 on coupon, pg. 17.

A new brochure, "Lighting Shields Made from 'Monocite' Methacrylate Monomer," has recently been issued by the Advertising Dept., E. I. du Pont de Nemours and Co., Inc., Wilmington 98, Del. The booklet, A-15526, tells how such shields or panels can be used by architects and lighting engineers to light for the mood, area size, or type of work to be performed. Typical properties of a sheet cast from Monocite are also given.

Write No. B-535 on coupon, pg. 17.

H. G. Metals, Inc., 1355 Atlantic Ave., Brooklyn, N.Y., offers a complete catalog on their one-piece solid brass swivels. The swivel line, which is UL approved, turns 360 degrees and is available in a lacquered polish finish.

Write No. B-536 on coupon, pg. 17.

Fixture displays

(Continued from page 50)

organization he represents, as well as to himself.

The continuing growth of Camden Electric Supply Company began crowding the downtown location that had already expanded through the years as much as it could.

In 1950, a showroom was constructed in a suburban location and this was found to have also greatly alleviated the warehousing problem. Customers also liked to come here for their supplies because there were no parking

In 1958, a fire burned down the showroom and Mr. Flynn set about rebuilding. And in 1960, the new one-story building was officially opened to the trade, containing 15,000 square feet of floor space.

"Everything is located on one

level to facilitate company and customer needs," says Mr. Flynn. "And through departmentalization, traffic is easily directed to different parts of our building to speed up customer service and minimize waiting or confusion.

"Our new facilities enable us to provide our customers with the utmost in service and convenience in addition to better management control over our entire operation—and this includes further expansion that we can foresee in the near future."

Flexible lighting

(Continued from page 44)

A unique lighting innovation is the courtyard in the center of the office area. The court measures 44 by 66 feet and is attractively landscaped with a shallow fish pool, fountains, architectural lanterns, and several types of trees.

The lighting goal there, of course, is largely ornamental, since the lights are switched on only during dismal days or for the occasional night shifts. In this court are three architectural lanterns, eight decorative lights, and six hidden lights under the bridge to light up the pool. All are made of brass and use 150-watt bulbs or reflector lamps.

The architectural lanterns are of modern sculptural design, and are distributed around the court. The decorative lights are round cylinder brass shields with lamps inside and are used to light up the trees.

Since there is no switch control panel, they must all be turned on at the same time. They were designed by landscape artist James C. Rose of New York City.

Another innovation is the lighting in the production area which is flexible and can be moved around easily. The entire working area has built-in flexibility, and work benches can be easily

relocated. Power taps are made from overhead raceway ducts.

Lighting, which varies from 65 to 100 and 150 footcandles, can be altered or supplemented via plug-in trolley ducts. These stainless steel fixtures each have two 40-watt fluorescent lamps.

The offices use flush-mounted, fluorescent ceiling lights. These are recessed troffer, one-by-four-foot units, with two 40-watt rapid-start lamps. Units are mounted in a ceiling of inverted T-bar construction. Diffusers are of Albal glass in hinged frames set in continuous rows.

"Such lighting has helped us come up with a compact, aesthetically delightful plant," said Mr. Weinberg, plant manager. "It has been singled out for special commendation for its excellent site selection, future expandability with present economy, built-in scenery, imaginative landscaping, and plenty of plant services for production as well as research and engineering needs."

Wall of light

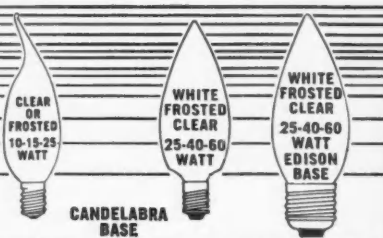
(Continued from page 43)

has usually purchased some fixture completely out of keeping with his needs. Someone has sold him the first fixture off the shelf that caught his eye; but not so with Larry Plagmann!

Frankly, I didn't believe the idea of lighting the front walls of this store really had a chance. It was too different; there was no other installation of this sort to show or demonstrate. It was a case of a theory against a sizeable investment.

Two years later, however, I was suddenly surprised by the store's complete installation of walls of light creating a balance of both vertical and much needed horizontal lighting. Merchandise became easily visible all the way up the wall, and window reflect-

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ions were greatly reduced. Business shot up 20 per cent.

Originally, it was my belief that this different lighting method would increase Mr. Plagmann's business, and what, after all, is more important to the owner of a store than results which can be measured by the cash register?

In return, I felt I would be well compensated by being able to prove some of my contentions about vertical lighting. A very limited amount of written material is available on this type lighting, and even less on vertical lighting for store front walls or for side walls in display windows.

We had little to go on except theories of intensity and brightness limitations. We must admit that lighting is far from an exact science, because it involves the use of the human eye. Because of the variables, light can be more completely studied in the field with the help of case histories.

Are we not interested in looking straight at each other—on a horizontal line—not down at the top of each other's heads and

shoulders where overhead lights supply light beams most effectively? If the tops of cans in a grocery store were important, the labels would be there. Such reasoning was followed in the new installation.

Speaking of his new lighting system, Mr. Plagmann says: "It is now possible to make displays dramatic and effective all the way up to the top shelves with the use of the side panels of light. Immediately following the installation, a 20 per cent increase in gross business resulted.

"If I were to remodel another drugstore I would definitely include this wall lighting feature again."

Local competitors as well as out-of-town merchants came in to study the lighting change. Customers commented on the store's general appearance, the effective lighting, and the ease with which they could see and appraise merchandise.

"The lighted walls catch the eyes of pedestrians on the adjacent sidewalk," Mr. Plagmann

points out, "and these are the important passers-by among the street traffic. The lighted walls materially lessen the window reflections, greatly improving sight through the windows during daylight hours.

"The brighter sidewalk at night helps make the whole store stand out. The investment was certainly reasonable for what we got out of it."

Lamps within the walls are rapid-start, 48-inch, deluxe warm white type. They are dimmer controlled. These lamps, two in tandem, are positioned on 12-inch centers. This combination permits a maximum daytime brightness of about 333 footlam-berts, maintained in service.

After sundown, the brightness is reduced somewhat in order to reduce brightness contrasts and improve the entrance atmosphere.

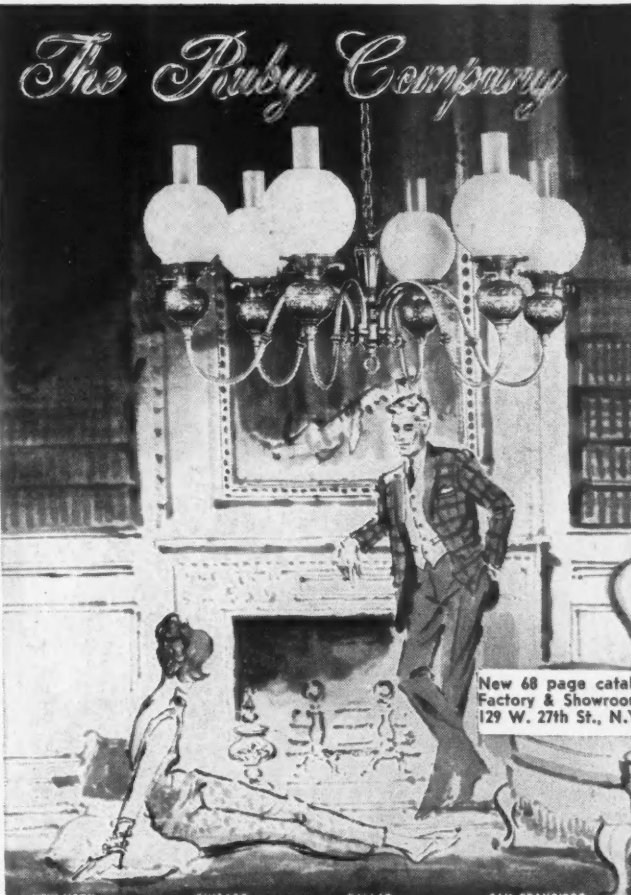
Some of the major accomplishments of the new lighting system were:

(1) Many more customers were attracted to the store;



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The Ruby Company is America's largest manufacturer of authentic lighting reproductions for home and commercial use.

(2) Sales gross was boosted 20 per cent, and held;

(3) Window reflections were satisfactorily diminished so that merchandise could be clearly seen;

(4) Merchandise was lighted well above average intensity to an unusual depth within the store;

(5) The vertical lighting component was almost doubled in the entrance way;

(6) Merchandise was silhouetted on the shelves;

(7) Translucent merchandise was lighted from behind, showing off colors and form;

(8) "Spill light" out through the glass front was greatly increased, and proved invaluable;

(9) An engineered environment of quality was obtained;

(10) The entrance area greets customers and leaves them with a good impression;

(11) An atmosphere of warmth and friendliness was created; and

(12) The customer is highly satisfied.

Those taking part in this installation from a professional or trade standpoint were Irving Forbes Brown, architect, San Mateo; Mausser Electric Co., electrical contractors, Burlingame; and John M. Gill, utility lighting specialist, Pacific Gas and Electric Co., San Mateo.

Production aid

(Continued from page 40)

"Summing it up, we are so light conscious that we have 100 footcandles throughout all offices, both private and general."

Childers-Graver Electric Co., the electrical contractor, is using Power Groove almost exclusively to illuminate large areas. Just recently, Mr. Graver relates, they sold a Power Groove installation that would have taken five and one-half times as many 40-watt fluorescents to produce the same lighting level.

Childers-Graver sold Boone Box their first installation of flexible and movable busway and periodically has added to it. The new plant has 500 feet of 225-amp, three-pole, plug-in busway, and over 300 feet of it was moved from previous locations of the company.

Relighting to 200 fc

(Continued from page 38)

In the restrooms two-lamp surface-mounted units with wrap-around plastic shielding are used, with a matching unit wall-mounted for mirror lighting. Women's restrooms are lighted with four recessed eight-lamp units with plastic shielding. Homeline fluorescent lamps are the light source in all restroom areas.

The lunchroom is lighted with 150-watt recessed incandescent units, with decorative lighting being provided by six hanging fixtures. Draperies are lighted with 150-watt floodlights.

When RG&E first occupied the building in 1926, lighting levels were 15 footcandles, provided by 300-watt incandescent units, one for each ten square feet of floor space. Later, to increase lighting levels to 25 footcandles, the bulb wattage was increased to 500. That made the fixtures uncom-

fortably hot and bright.

In 1950 most of the incandescent units were replaced by a fluorescent system — continuous rows of suspended fixtures on eight-foot centers, each with two 40-watt pre-heat lamps. These increased lighting levels to an average of 60 footcandles.

Because of the availability of ample steam capacity, and freedom from noise and vibration, RG&E decided to use an absorption-type refrigeration plant. It is located in the building's penthouse, thus resulting in minimum condenser-water and chilled-water piping and pumping costs. The penthouse plant will serve the entire building.

The air conditioning and heating systems employ much of the same equipment. Under-window induction units with large coil capacity are served from a three-pipe system, which provides hot or chilled water as the temperature of the room requires. Each room or area has automatic temperature control.

The lighting system produces sufficient heat in the winter to meet the building's requirements, except in peripheral areas. Thus, supplementary heat is required under the windows.

To reduce excessive heat in internal areas, a high-pressure dual-duct air system is provided. This has individual mixing boxes for each office or zone, and diffusers located level with the bottom of the ceiling.

High and low returns are used to take air back to the apparatus rooms. Return air can be reused or exhausted to the outside.

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Publicly owned American manufacturer of Incandescent and Fluorescent lighting equipment for commercial and residential application seeks to establish working agreement with Canadian manufacturer or distributor to promote sales throughout Canada. Please write full details in strict confidence to LIGHTING, Box 159, 1760 Peachtree Rd., N.W., Atlanta 9, Georgia.

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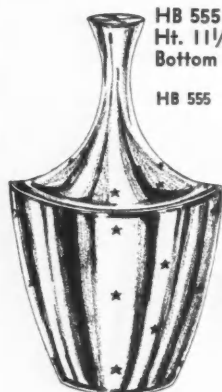
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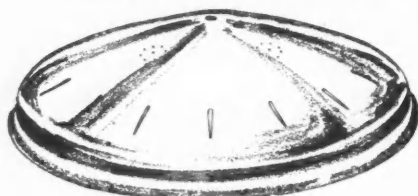
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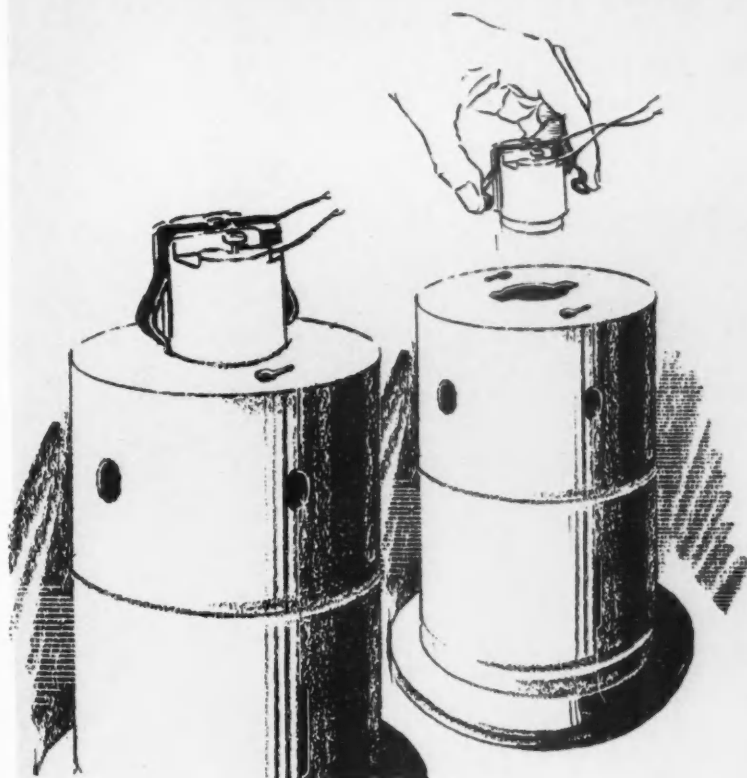
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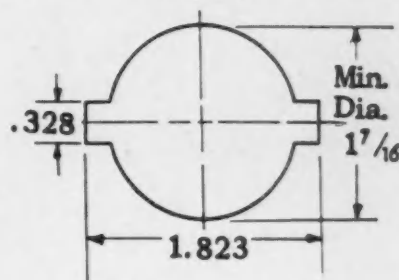
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